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Oct. 167

AGRICULTURAL BIOGRAPHY:

CONTAINING A NOTICE OF THE

LIFE AND WRITINGS

OF THE

BRITISH AUTHORS ON AGRICULTURE,

FROM THE EARLIEST DATE IN 1480 TO THE PRESENT TIME.

BY JOHN DONALDSON,

AUTHOR OF VARIOUS WORKS ON AGRICULTURE, AND OF PRIZE ESSAYS.

ARTHUR LIBRARY

"A GROUP OF BIOGRAPHICAL MEMOIRS, CHRONOLOGICALLY ARRANGED, FORMS A VERY USEFUL APPENDIX TO THE POPULAR HISTORY OF ANY ART OR SCIENCE."

"ET QUASI CURSORES VITÆ LAMPADA TRADUNT."—LUCRETIUS.

LONDON:

PRINTED FOR THE AUTHOR.

MDCCCLIV.

PREFACE.

The writer of a preface has been called "an accomplished liar," from the exaggerated statement generally made of the labour that has been incurred, and an over-estimate of the value of the work that has been produced. The preface to a book is as the porch of a house, denoting the good entertainment that is provided within the edifice; and an unadorned porch may be the most proper entrance to a simple work, of which the interior furniture may not possess a splendour to justify an elegant approach. A splendid preface and an ill-written book should not come together: yet such junctions or "marriages" are held to be allowable, as they are not "of kin." A sincere feeling and a truthful modesty must occupy the place of all other expressions, and vindicate the estimation of their value. On these grounds, a few observations are given at risk.

The author of this biography has laboured for more than thirty years in the field of the most enlightened practical agriculture, and in the closet of its illustrations. On closely examining the records of the art, it appeared there was no biography of its writers from the earliest date to the present day, nor any estimate made of the merits of the authors as the progress of circumstances enabled the development. Two lists only are found—one by Weston, which ends in 1772, and contains the names and writings of the authors on agriculture and gardening; the other by the late Mr. Loudon, commencing in 1500, and ending in 1830, with the names and works of the British authors on agriculture, but containing no observations of any kind, nor any biographical sketch. The author was induced to consolidate these two works, and to enlarge them by the access to the national libraries, which revealed several names that had not occurred to these compilers, and afforded the means of continuing the list of authors to the present time. An opportunity was also thereby given to the author of examining the books themselves, as only some few works are not found in the library, which are mentioned in the biography. This circumstance confers a special value on the compilation, and the extracts from the works will show that the opportunity has not been neglected. No labour has been spared in searching every available record of titles and authors: the King's Library, in the British Museum, has rendered very great assistance, and, with the Bibliotheca Britannica, afforded much information not elsewhere to be found. The shops and stalls of old books have been examined, and volumes have been there

found and recorded that are not contained in the National Library. The advertising sheets of other books have not been neglected; and these channels have revealed names and titles not elsewhere exhibited. Great obligations are due to the lists of Weston and Loudon, though several names had escaped their research; yet the greater number of names have found an entry and a reference to their lists as the only authenticity that can be got. The correctness of dates rests with the published works in every case of the books being found; when not seen, the author has followed the lists above-mentioned, and in all doubtful cases the authority is mentioned.

The author entertains a humble hope that his performance may merit a share of public consideration; and if a moderate award be justly established, the writer's ambition will be amply gratified, and his labour fully repaid.

Biographers have been called "literary vassals," who are bound by fealty to render homage to some superior, and who are under obligation to return the tribute of panegyric for favours that have been received. This character applies chiefly to the writers of a single biography, which is generally undertaken for the purpose of repaying obligations, and of extinguishing the debts of kindness and services. No freedom exists; but every idea must be praise, and every line an echo of merit, whether it was real or accidental. The extent of our subject dispels all relation of vassalage; no obligation is due for favours conferred—no debt is owing for services that may be real or supposed, and no fealty remains unpaid. The author and the writers never met, nor were seen by each other; hence, our opinion is free and unfettered, bound by no ties, and manacled by no obligation. Our biography is rid of the general hindrance, and its removal is strictly as possible preserved. Of the living authors, no opinion is expressed which can raise contention or engender strife a cautious approbation never gives offence.

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AGRICULTURAL BIOGRAPHY.

It has been often observed that nations are very considerably advanced in civilization before they commit to writing records or memorials of any kind, and that a much greater progression has been made before any notice has been bestowed on the most simple and necessary of all the arts of practice, in the use of the earth for procuring the necessaries of life. The very imaginative philosophy of the Greeks, who were the first historians, scarcely condescended to bestow a glance on the art of obtaining the fruits of the earth; a very few incidental notices afford an imperfect gleaning from the field of practice which they had adopted, and their speculative conceptions continued to lead astray their minds from the useful arts of life till their political and moral grandeur sunk and was extinguished in the western hemisphere. Even the more practical acuteness of the Roman people, who succeeded the splendour of the Greeks, did not adopt agriculture as a topic of illustration till the period of the Christian era, when their grandeur had passed its zenith and the radiance had begun to wane. The records they made are few, and the knowledge was scanty and imperfectly conveyed. In Britain the long period of fifteen centuries had elapsed before the practice of agriculture was honoured with a written notice, when the discovery and use of printing had begun to diffuse its blessings, and to show the effects of the mightiest power that has yet been given to man. So long a time was required to emancipate the human mind from the fetters of bondage with which it was manacled by the dominion of feudal power, and to escape from the meshes of a closely-woven network thrown over it by the darkening bigotry of a most intolerant religious superstition. When these barriers of degradation and buffoonery were removed, the dignity of the human mind was soon revealed, and exhibited its inherent splendour.

Learning received advantages from the invention of printing, which spread the dominion of knowledge to an immeasurable distance beyond its former limits; there soon appeared a necessity of collecting and condensing the widely-scattered materials into such limited forms as were easy of access and distinctly correct. Hence have arisen the dictionaries, lexicons, and bibliothecs of modern times; and not for the interpretation of words, for these were always frequent, but for the explanation of things.

In tracing the progress of an art from the lives and writers of the inventors and improvers, the practical knowledge is derived which sees the foundation of the system that has arrived, and perceives the difficulties that are to be overcome, and the contentions that are to be encountered in making any deviation from established usages. In biographical notices the most prominent circumstances are selection, compass, and arrangement. The alphabetical order is very justly preferred to any other method, and has obtained a universal adoption; but our special purpose differs from general compilations—in these no order is attempted of any particular object: the descriptions are general, and relate to persons, and not to any specific point. Our attention is directed to the gradual progress of agriculture as it received assistance and illustration from the writings of theoretical and practical men; and the view is more turned to the art than to the person, and to the result than to the originator; not that the prime mover will be neglected—on the contrary, that person is entitled to the first consideration; but successive improvers must be regarded, and the advancement which the art received from their labours.

This very important consideration, and the impossibility of finding the date of the birth of the writers, and the scanty memorials that can be got of their wordly sojourn, has induced the chronological arrangement by the date of the published work, and of the first work when more than one came from the same author. This order continues the gradation of improvements, and tends to show

the assistance which may have been in any case derived by an author from a preceding treatment of a subject. This is a chronological list of the steps in the ascent of the art, and not of the births or lives of the authors; it shows how the foundations were laid, and by what means the edifice has been reared. The dates compose the chronology in the notice of the authors; and there is added, in the common way, an alphabetical list of the authors by the initial letter of the surname, so that the notice of any author can be found at the page of the book that is attached.

The difficult point of selection is summarily dismissed, for our list comprehends every British author of whom any notice can be found from the most careful and patient research; we shall thus escape the charge of partiality and nationality in choosing and rejecting names for notice, and will only incur the risk of showing favour or neglect as our narrative proceeds. Much attention is due to the age or period when the author lived; and a fair allowance should be made, and a just proportion observed, of the ease and abundance with which the materials are procured as the times of existence approach our own days. It is true that the subject becomes much more interesting in the more advanced stages of progress than in the early dawn, but greater care is due on that account to the investigation of the causes of movement.

The compass, or extent to be allowed in such works, is a point of value, as biography will certainly bear of being written much at large, and the more minute it is, it often becomes the more entertaining and instructive when judiciously handled. Here again our special object is intruded—a series of finished and full-sized portraits, or a set of characteristic sketches in miniature, is not the aim; but a gradual tracing of the progress of the most necessary of all the arts that are practised by mankind. Consequently, the first attention is the relative merit of the writer in the department which he occupied, and joined with the manner in which he was first formed to his art or profession, and the gradations by which he rose to excellence. The principal events of his life shall not be overlooked, nor his moral and intellectual qualities, but related with all the accuracy that conciseness will allow. There will be higher claimants which require a diffuseness, and an inferior rank that will obtain a more brief notice. The materials to be got will chiefly influence the compass of our notice of the rural authors; the researches of former enquirers shall have our gratitude expressed, and the accuracy and impartiality will not be doubted, especially when confirmed by mutual agreement. The substance of different narrations will be melted into one, the several parts proportioned, and the characteristic features carefully marked and stamped by an unbiassed judgment, which may aspire at least to the rank of original writing. The gratitude of mankind is most justly due to the useful labours of industry, which has benefited the human race, and has held out the lamps of genius and of experience to show the paths to future enquirers, and to warn the dangers of ill-directed employments; a re-union is formed with existence in its most excellent state, and nothing is felt to be dead in the past while the sympathies are retained that only require to be awakened. The labour is not without its difficulty of assigning the due proportion of attention and respect which may be owing to the competitors of fame, as the risks of falling into errors are much more numerous than the means of avoiding them. It is very difficult to decide between the merits of invention and improvement, as no precise line can be drawn between the two exertions of intellect. The history of the human mind does not present anything more curious than to trace the operations of an inventive talent working its way, often without any foreign aid, and deriving from its own resources the means of overcoming the successive difficulties which thwart its progress. It is in such a process that the distinguishing powers bestowed upon man are most surprisingly exerted, and that the superiority of one individual over the common mass is most luminously displayed. The exercise of the faculties in an original path is entitled to the first consideration, and the successive improvers are not much beneath original talent in the merit of pushing forward the gradual advances of a particular pursuit till a very uncommon excellence was attained. A vigorous exertion of the faculties is required, and a most energetic and persevering industry, in order to confer an addition so considerable as to deserve a special commemoration. A just title to have the name perpetuated may belong to the person who has reached an uncommon excellence without showing any originality or improvement, since it shows a very large use of the rational powers, and affords animating examples of the possibility of effecting extraordinary things. Many names of high reputation are included in this class, and have been noticed accordingly.

A man is his own monument, and must be estimated by the foundation which he has laid, and by the duration of the superstructure. A very large attention is due to the time in which he lived, and to the circumstances by which he was surrounded —to the education of the age, and to the policy of the political and social rule that existed. The advancement of arts and sciences depends as much on these establishments as on individual exertion; and the stirrings of the human mind require im-

ses in the two-fold capacity of a recipient and exponent. These circumstances shall be duly iced at the periods of occurrence, and will be nded with appropriate observations.

Necessity compels our being indebted to former graphers for notices and events; but in every e of the books being accessible to our research private opinion of professional judgment will used, and an impartial criticism bestowed. The ticular attention will be directed to the merits of author as an original thinker, an arduous im-ver of adopted ideas, or the follower of a beaten h, which he has rendered more even and of ater width than when he entered upon the track. ıen no opinion can be formed, the relations of er writers will be stated, and the authorities en. To trace the gradual progress of the art is main object of our purpose, and to that end the ef attention will be directed. The introduction ıgricultural biography need not be more ex-ded—a large book is the harbour of ignorance, l compression is ever more powerful than ex-ısion. The preface to a book has been com-ed with a porch to a house, as both provisions ıote a good cheer and commodious treatment hin the edifice. Yet lengthy prefaces and msy dedications are only suited to the huge ırtos, within which ignorance, bigotry, and ɔerstition, have ever been inexpugnably en-nched, and have bid defiance to the attacks of lighter bulks of matter. Truth and reason are best patrons of a book, and form a monument ıch more lasting than brass. Patterns are ex-ıited of acquiring a power over all external ob-ts, and of maintaining

"That strong divinity of soul
Which conquers chance and fate."

ıd

"Lives of great men all remind us
We can make our lives sublime,
And, departing, leave behind us
Footsteps on the sand of time—

Footprints that perhaps another,
Sailing o'er life's solemn scene,
A forlorn and shipwreck'd brother,
Seeing, may take heart again."

Our chronological record begins with a name ıt is not strictly connected with practical agri-lture, but whose profession very much contri-ted to lay the foundation of the laws of real pro-rty, of which land is the chief type. Without a ındation on which to rest firmly and securely, riculture could not have progressed, nor could provements have been rewarded by the maxims justice and equity.

I.—Lyttleton, 1480.

Thomas Lyttleton was a celebrated English judge, and was born about the beginning of the fifteenth century. His father was Thomas Westcote of the county of Devon, who, by marrying the daughter and sole heir of Thomas Littleton, or Lyttleton, of Frankley, in Worcestershire, inherited an estate of land, and the issue assumed the name that belonged to it. The family has risen to the title of Lord Lyttelton of the present day. Our author studied the law, and soon became eminent in the profession; and, after passing through several offices, was appointed in 1466 one of the Judges of the Court of Common Pleas. He enjoyed much esteem till his death in 1481.

The memory of Judge Littleton is preserved by his "Tenures," of which the numerous editions evince the estimation. Twenty-four editions were printed from 1539 to 1639. The original composition of this celebrated work is justly esteemed as the principal pillar on which the superstructure of the law of real property in this kingdom is supported; and it has been much commented upon by Coke and others. There was a book written in the reign of Edward III., which is called "Old Tenures" to distinguish it from Littleton's book. It gives an account of the various tenures by which land was holden, the nature of estates, and some incidents relating to landed property. It is a very scanty tract, but has the merit of having led the way to Lyttleton's famous work.

The copy of "Tenures," in George the III.'s library in the British Museum, is in vellum of 1671, and printed in opposite columns of French and English. It is thought that the work was first published in French, and that the English addition was published by the author himself the year (1480) before his death (1481).

II.—Grosthead, 1500.

Robert Grosthead, Grouthead, or Grosseteste, for the name had no less than twelve different spellings, was Bishop of Lincoln in the thirteenth century, and a person of note in those times. He is reputed to have been born in 1175, of honest parentage, at Stradbrook, in the county of Suffolk. He rose to the bishopric more rapidly than many others through the minor gradations of office, and proposed many alterations and reforms in the then very gross abuses of the Romish church; but he was wholly overborne by clamour and upset by prejudices, as the time of reformation was not then come. He died in 1253.

Grosthead was a most voluminous writer, and on a great variety of subjects. His works are stated at 200 in number, of which few have been published, and hence may not have been thought to be

worth the publication. The old catalogue of the Peterborough library ascribes to the Bishop "Liber qui vocatur Housbondrie," or "A Treatise of Husbandry, which Mayster Groshede, some time Bishop of Lincoln, made and translated out of French into English." It has been supposed that the bishop only translated it from French; and, otherwise, that he first wrote it in French and then rendered it into English. Somebody has turned it into Latin. Among Bishop Moore's works, in the public library at Cambridge, is a 4to "Buke of Husbandrie." Under this title, on a scroll, is the cut of a person standing in a wood or park, giving orders to a woodman who is felling a tree. It contains 18 leaves. "Here begynneth a Treatise of Husbandry, which Mayster Groshede, sometyme Byshop of Lyncoln, made and translated out of Frenshe into Englyshe, which techeth all manner of men to governe theyr lands, tenements, and demenes ordinatly, as by the chapytres evidently is shewed." It concludes with, "Here endeth the buke of husbandry, and of plantynge and graffynge trees and vynes." No date or printer is mentioned.

This book is not found in the library of the British Museum, nor is mentioned among the bishop's work's in the "Bibliotheca Britannica." The late Mr. Loudon has stated that the book is a 4to volume, and printed by Wynkin de Worde; but he has not mentioned if he had himself seen the work, or had conversed with any person who had examined it. We are, therefore, unable to give an extract from the book, or to quote any opinion of its contents. "The Buke of Husbandrie," 4to, appears in the list of books printed by Wynkin de Worde, but no date nor author is mentioned.

III.—Fitzherbert, 1532.

Sir Anthony Fitzherbert was born at Norbury, in Derbyshire, where his family enjoyed a landed patrimony, and held a very respectable position in society. The date of his birth is uncertain. After receiving the usual education for the legal profession he was called to be Serjeant-at-law in 1511, in 1516 he received the honour of knighthood, and in 1523 was appointed one of the Justices of the Court of Common Pleas. He soon began to show an independent eminence in his profession—openly opposed Cardinal Wolsey in the height of his power; and, on his death bed, most earnestly pressed his children to accept no grants, nor to make any purchases of church lands. The death of his elder brother John left him the possession of the family estate, which enabled him to make a good provision for his numerous family. He died in 1538, and was buried in his own parish church of Norbury. The Fitzherbert family, in the different branches of it, continues to flourish chiefly in Derbyshire and Staffordshire. The late Mrs. Fitzherbert, of court notoriety, was a descendant of the family.

The legal works of the learned Judge of the Court of Common Pleas were numerous and valuable. In 1532 there appeared "The Book, or Boke, of Husbandry, very profitable and necessary for all persons," which was afterwards often reprinted without date. In 1539 there appeared "Of the Surveying of Lands," in a small 8vo., containing 120 pages in black letter, imprinted for Berthelet. This treatise consists of instructions to noblemen and gentlemen who are the managers of their own estates, and to land stewards, bailiffs, &c., who are under them. It sets forth likewise the nature of tenants' tenures, and the laws of court baron, court hundred, chartuaries, &c., being a sort of commentary on an old statute named "Extenta Manerii."

The "Boke of Husbandrie" of Sir Anthony Fitzherbert is the first work in the English language which treats expressly on the subject of practical agriculture. It has been supposed that his brother, who lived on the landed estate, had written the matter of the book, and that the judged had revised the contents, as he states it to be the production of a forty years' experience. Others think that the intervals of his legal employments were devoted to rural pursuits, and that he mentions the period of his attention to have been in that number of years. The copy of the book in the British Museum is dated in 1548, and contains 180 duodecimo pages. It describes the ploughs then in use, and the different articles of tillage, and which specially belong to a team of horses. The wheels of carts and waggons are recommended to be shod with iron, whence it may be inferred that in those days these vehicles were altogether composed of wood. The author prefers oxen to horses for rural labour, and at the same time frankly admits that horses will go much faster than oxen on even and light land, and that they are quicker for all sorts of carriage work. It required the enlightened progress of nearly three centuries after the time of Fitzherbert to banish this prejudice anent oxen and horses, though nature has very sufficiently settled the point in the muscular formation of the animals. It lingers now only in some parts of South Britain, where latent barbarisms of the mind, as in flail threshing, appear to be more deeply rooted than in other soils. It would seem that the husbandman in Fitzherbert's days combined a knowledge of every profession; for among the appendages of a plough we fine an axe, hatchet, hedge-bill, auger, flail, spade, and shovel very particularly enumerated. It is also recommended that young husbandmen should learn to make their yokes, ox bows, stools, and all

manner of plough gears, lest the purchase of these articles be too costly for them. He advises that the huswives, or the wives of farmers, perform all manner of work, in baking and brewing, winnowing corn, driving and filling the dung carts, and attending the grinding mills where the different flours are made. The wives of the present day will not much relish this advice.

As Fitzherbert's book is the first expressly practical work on agriculture, we are induced to give at length the contents, as arranged in the edition of 1548.

HUSBANDRIE.

Here begynneth the Boke of Husbandrie, and, furste, where bye husbandmen do lyve.

	Folio.
Dyvers manner of plowes	1
To knowe the names of all the partes of the plowe	2
The tempyring of plowes	3
The necessary thynges that belong to a ploughe, carte, and wayne	4
Whether is better a plough of horses or a plough of oxen	5
The diligence and the attendance that a husband shoulde give to his trade, in manner of another prologue, and the speciall grounde of all this treatyse	6
How a man shoulde plowe all manner of landes all tymes of the year	7
To plowe for pease and beans	8
Howe to sow bothe pease and beanes	8
Sethe of discrecion	9
How all manner of corne shoulde be sowen, and how much an acre of grounde is by statute	10
To sow barley whereof there be three kyndes	11
To sowe otes	12
To harrowe all manner of cornes	12
To falowe in what time is beste	13
To cary out dounge and mucke, and to spreade it	14
To set out the shepe folde	15
To carry woodde and other necessaries	16
To know divers maners of wiedes	16
How to wiede corne	18
The fyrste furryng of the falowes	18
To mowe grasse	19
Howe forkes and rakes should be made	19
To tedde and make hey	20
Howe rie shoulde be shorne	21
Howe to sheve wheate	21
To mowe or shere barley and otes	22
To reape or mowe pease and beanes	22
Howe all manner of cornes shoulde be tythed	22
Howe all manner of corne shoulde be covered	23
To lode corne and moowe it	24

	Foli
The fyrst furryng	24
To sowe wheate and rye	24
To threshe and wynowe corne	24
To sever pease, beanes, and fytches	26
Of shepe, and what tyme of the yere the rammes shoulde be put to the ewes	26
To make a ewe to love hir lambe	27
What tyme lambes shulde be wayned	28
To draw shepe and sever them in dyvers places	28
To belte shepe	29
To grease shepe	29
To medle tarre	30
To make brome salve	30
If a shepe have matflies	30
Blyndenes of shepe and other dyseases, and remedies therefor	31
The income in the shepe's fote, and helpe therefor	31
The fiscude, and remedy if one come betyme	32
The pockes, and remedy therefor	32
The inoode cuyff (sickness), and remedy	32
To washe shepe	33
To shere shepe	33
To draw and sever the badde shepe frome the good	33
What thynge rotteth shepe	33
To know a rotten shepe	34
To bye lean cattell	35
To bye fatte cattell	35
Dyvers sycknesses of cattell and remedies therefor, and fyrste of murren	36
Long sought (sickness), and remedy	36
Beinborn, and remedy therefor	37
Ryson upon, and remedy therefor	37
The turne, and remedy therefor	38
The many flebes, and remedy therefor	38
The foute, and the remedy therefor	39
The goute is without remedy	39
To rere calves	39
To gelde calves	40
Horses and mares to draw	40
The losse of a lambe, calfe, or fole	42
What cattell shuld go together in one pasture	42
The properties of horses	44 & 45
The diseases of horses	45 to 40
Of swyne	51
Of bees	51
How to kepe beastes and other cattell	52
To get settes, and set thereon	53
To make a bythe	54
To make a hedge	54
To plash a hedge	55
To mende a bye-waye	56
To remove and sette trees	56
Trees to be set in without rootes and graine	57

	Folio.
To felle woode for use and to sell	57
To shrede, lop, and croppe trees	58
Chesemen shuld shrede, lop, and croppe trees	58
To sell woodde and timber	59
To kepe sporyng woodde	60
Necessary thynges belongyng to graffyng ..	60
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Howe to graffe	61
To graffe between the barke and the tree ..	62
To nourysshe all maner of stone fruits and nutts	62
A shorte information for a young gentyleman that entendeth to thryve	63
Lesson made in Englishe verse, that a gentyleman's servant shall forget none of his duty and tyme	64
A prologue for the year's occupation	65
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What thynges a wyfe is bounden to dooe of nyghte	66
What markes the wyfe oughte to dooe generally	66
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Of delycious meates and byakos	72
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What is the property a ryche man	76
What joyes and pleasures are in heaven ..	77
What offryng pleaseth God best	77
What be God's commandments	78
How a man shuld serve God and please Him	78
How a man shuld serve his neyghbour ..	79
Of prayer that pleaseth God very much ..	79
What thynge fetteth prayer	80
How a man shuld praye	80
A meane to put away ydle thoughts in praing	82
A meane to avoyde temptation	83
Almes deedes pleseth God much	84
The fyrst maner of almes	85
The seconde maner of almes	86
The thyrde maner of almes	87
What is the greatest offence that a man may dooe and offend God in	88

The last page of the book contains these words: "Thus endeth the ryghte profytable Boke of Husbandrye, compyled sometyme by Mayster Fitzherbarde, of charitee and good zele that he have to the weale of this most noble realme, which he did not in his youth, but after he had exercised husbandry, with greate experience, forty years."

In the information given to the young gentleman the author says: "And over and beside all this boke, I will advise him to rise betime in the morning, according to the verse before spoke of—'Sanat, sanctificat, et ditat surgere mane'—and to go about his closes, pastures, fields, and specially by the hedges; and to have in his purse a payre of tables, and when he seeth anything that wolde be amended to wryte it in his tables—as if he fynde any horses, mares, beastes, shepe, swyne, or geese, in his pastures that be not his own; and, perauventure, thoughe they be his owne, he wolde not have them to go there; or to fynde a gap, or a sherde in his hedge, or any water standynge in his pasture uppon his grasse, wherby he maye take double herte, bothe losse of his grasse and rotting of his shepe and calves; and also, of standynge water in his corne fieldes at the landes endes or sides, and howe he would have his landes plowed, donged, sturred, or sowen; and his corne weeded or shorne, or his cattell shifted out of one pasture into another; and to loke what dyching, quicsettyng, or plashing, is necessary to be had; and to oversee his shepeherd how he handleth and ordreth his shepe, and his servantes how they plowe and do their workes; or if any gate be broken down, or want any stawes, and go not lyghtly to open and tyne, and that it do not traise, and that the windes blowe it not open, with many mo necessary thynges that are to be looked upon. For a man alwaye wanderynge, or goinge aboute, fyndeth or seeth that is amysse and wolde be amended; and as soone as he seeth any such defautes, than let hym take oute his tables and wryte the defautes; and when he commeth home to dinner, supper, or at nyght, than let hym call his bayley, or his heed servante, and soo shewe hym the defautes that they may be shortly amended; and, when it is amended, than let hym put it out of his tables. For this used I to doo X or XI yeres and more, and thus let hym use dayely, and in shorte space he will sette moche thynges in goode order, but dayely it wyll have mendynge; and yf he canne not wryte, lette hym nycke the defautes uppon a stycke, and to shewe his bayely, as I sayde before. Also take hede, both erly and late, at all tymes, what maner of people resorte and comme to thy house, and the cause of theyr commynge, and specially if theye brynge with them pitchers, cannes, tancardes, bottelles, bagges, wallettes, or bushell pokes; for if thy servantes be not true they maye doo thee great hurte, and themselfe lyttel avauntage, wherefore they wold be well looked uppon. And he that hath two true servantes, a man servante and an other a woman servante, he hath a great treasure, for a trewe servante will do justly hymself, and if he see his felowes do amysse he wyll byd them do no more so,

for if they do he wyll shewe his master thereof—and if he do not this he is not a trewe servante."

The directions given in folio 64 to a gentleman's servant, that he may leave nothing behind him at an inn, are worth transcribing:—

"Purse, dagger, cloke, nyghtcap, kerchief, boryng bonne, baget and shoes, speare mase, hoode, halter, saddel clothes, hatte, with thy horse combe, bowe, arrowes, sworde, buckler, horne, leifshe, gloves, stringe, and thy bracer; penne, paper, inke, parchesmente, readwayes, pommes, cakes, thou remembre; penknyfe, combe, thymble, nedle, threde, poyntee, lest thy garthe breake; bodkyne, knyfe, fyngel; give thy horse meate; see he be stowed well; make mery; sing if you can; take hede to thy gere that thou lose none."

Fitzherbert seems to have understood the word "husbandry" in the enlarged and proper meaning, as he gives directions in the husbandry of moral and religious conduct as well as in the husbandry of the ground. Husbandry relates to every action and vocation of life, as does economy to the rules and regulations of all enterprizes and performances, and by no means to the pinching niggardliness of the necessary appliance, as is generally understood. Husbandry relates to all the members of the employment—economy directs the applications to every special point.

Our lengthy notice and quotations from Fitzherbert's book are intended to show the reader a specimen of the writing contained in the first English work on practical agriculture, and also the heads of the divided matter which forms the volume. The author was the first native of Britain that studied the nature of soils and the laws of vegetation with philosophical attention. On these he formed a theory confirmed by experience, and rendered the study pleasing as well as profitable by realizing the principles of the ancients to the honour and advantage of his country. These books, being written at a time when philosophy and science were but just emerging from that gloom in which they had so long been buried, were doubtless replete with many errors, but they contained the rudiments of true knowledge, and revived the study and love of agriculture.

IV.—Benese, 1535.

Sir Richard Benese was Canon of Marton Abbey, near London. No memorials exist of this writer except the book on measuring land, to which his name is affixed. The copy in the British Museum is without date, and in black letter. The title-page is "The Boke of Measuring Land, as well as of Woodland, and Pasture in the Field; and to Compt the True Number of Acres of the Same." Newly corrected and compiled by Sir Richarde de Benese. Imprinted at London, by Thomas Colwell.

The book contains 112 duodecimo pages, figures of the shape of lands, the dimensions, and the contents. Two short chapters are added on measuring timber and stones. Three editions were published—in 1535, 1538, and the last without date, which is now mentioned.

V.—Tusser, 1557.

Thomas Tusser was born about the year 1515, at Rivenhall, near Witham, in Essex, where his father, William Tusser, married a daughter of Thomas Smith, of Rivenhall, by whom he had five sons and four daughters. Hence our author referred to the heralds' book for the gentility of his family, and says he "was born of lineage good and gentle blood." The name and race, however, have long been extinct. He was educated as a musician, and was soon placed as singing boy in the collegiate chapel of the castle of Wallingford; and, after frequent change of places and enduring many hardships, he was admitted into St. Paul's, where he attained considerable proficiency in music. He was sent to Eton school, and thence to Cambridge, where sickness interrupted his studies; and, having left the University, he was employed about court, probably in his musical capacity, by the influence of his patron William Lord Paget. He appears to have been a retainer in this nobleman's family, and he mentions his lordship in the highest terms of panegyric.

He remained ten years in this situation, and then, retiring into the country and marrying, became a farmer at Cattiwade, in the parish of Brantham, county of Suffolk, near the river Stour. Here he composed his book on husbandry, the first edition of which was published in 1557, and dedicated to his patron Lord Paget. This rude essay, in "one hundred points of good husbandry," was the germ of his future and more elaborate work, and must have required at least several years' acquaintance with rural affairs. He may have experienced a reverse in farming, as he is found in Ipswich, where his wife died, at West Dereham, and at Norwich. He married a second time, but did not add to his happiness. He next obtained a singing-man's place in the cathedral of Norwich, then tried farming again at Fairsted, near his native place; and, again failing, he repaired to London, and, flying from the plague in 1574, he went to Cambridge. When the scourge abated he returned to London, and died there, as is generally supposed, about 1580, and was buried in St. Mildred's Church, in the Poultry, with an epitaph by himself, as recorded by Stowe—

' Here Thomas Tusser, clad in earth, doth lie,
Who some time made the Points of Husbandry;
By him then learn thou mayst, here learn we must,
When all is done, we sleep and turn to dust;
And yet, through Christ, to heaven we hope to go:
Who reads his books, shall find his faith was so."

Tusser's second work, "Five Hundred Points of Good Husbandry," appeared in 1580, and must have been well received, as above twelve editions were printed within the first fifty years, and many others since that time. The best editions are of 1580 and 1585, but they are very scarce. In 1812 Dr. Mavor published a new edition, carefully collated and corrected, with a series of notes, georgical, illustrative and explanatory, a glossary, and other improvements.

Tusser's book is written in quatrains, or stanzas of four verses each, in doggrel rhyme, and very obsolete. He gives the corn harvest, equally divided into ten parts:—

" 1. One part cast forth, for rent due out of hand;
2. One other part, for seed to sow thy land;
3. Another part, leave parson for his tithe:
4. Another part, for harvest, sickle, and scythe,
5. One part, for plough-wright, cart-wright, knacker, and smith;
6. One part, to uphold thy teams that draw therewith;
7. One part, for servant, and workman's wages lay;
8. One part, likewise, for fill-belly, day by day;
9. One part, thy wife for needful things doth crave;
10. Thyself and child the last one part would have.

" Who minds to quote
Upon this note,
May easily find enough;
What charge and pain,
To little gain,
Doth follow toiling plough.

" Yet farmer may
Thank God and say,
For yearly such good hap,
Well fare the plough,
That sends enow,
To stop so many a gap."

For an author, the vicissitudes of the life of Tusser present a very uncommon variety of incident. He had no vicious extravagance, or any tincture of careless imprudence, and yet his desultory character did not thrive in any vocation. He failed in farming as his chief pursuit; and, although he may have been a good theorist for the time, his practice was much behind. He is said to have been a good-natured, cheerful man, a lover of economy, and far from meanness, as appears in many of his precepts, and always condemns the policy that would rather lose a pound than spend a shilling. He has been thought an able farmer, and placed on a level with Varro, Columella, and Palladius, and probably more aptly with Hesiod. Both wrote in the infancy of husbandry, and gave good general precepts without going into detail, though Tusser has more of it than Hesiod. They address the minds as well as the lands by recommending industry and economy, and used verse as the more effectual means to propagate their doctrine.

The precepts of Tusser are excellent, and show very much cool collected sense; but the temptations and perplexities of life very frequently overturn the maxims and resolutions of prudence, and create a wide discordance between the very best intentions and the results of circumstantial necessity. Cultivated minds and lively imaginations do not always offer the steadiest and most effectual resistance to the shocks of adversity, and the rebuffs that attend almost every enterprize; and Tusser's singing gentility and courtly breeding may not have well accorded with the frugal care and persevering industry which are most essential to the success of every agricultural undertaking. Beyond most other employments, farming requires the most active and energetic perseverance, combined with the most minute and careful attention.

The following head-piece appeared in 1641:—

" Tusser, they tell me, when thou wert alive,
Thou, teaching thrift, thyself could never thrive;
So, like the whetstone, many men are wont,
To sharpen others, when themselves are blunt."

Tusser divides the gross produce of the lands into ten purposes, of which the rent is only one distribution. He allows three-tenth parts to the farmer's maintenance, and the full half of the produce for expenses. These proportions differ vastly from the ratios which now obtain between the landowner, the farmer, and the expenses, in which the former gets from a fourth to one-half of the gross produce, or one-third in the average, and the farmer is left with two-thirds for himself and the expenses. The landowners now-a-days would look very shy at one-tenth part of the produce for rent; and Tusser seems to have had no idea of the interest of capital, or of allowing for the farmer's time. He calculates only for the maintenance of the farmer, which in his time may have been all that was expected from such employments as farming. The increase of population and of capital has completely overturned and reversed the arrangements of the primeval days of British agriculture.

At the early age of literature in which Tusser lived, it was a grand conception of his mind to write agriculture in poetry, and dignify the art with that refinement. He probably thought to grace an art that has never been adorned, and also to build its palace in its verse—an idea that has

never since that time occurred to the many would-be decorators of agriculture, but which may probably, in no great distance of time, be done in heroic verse by the writer of this biography, and thus join the company of Hesiod, Virgil, and Tusser.

VI.—Scot, 1576.

Reynolde Scot was a learned English gentleman, and the younger son of Sir John Scot, of Scots-hall, near Smeeth, in Kent. He was bred at Oxford, and gave himself up wholly to solid reading—to the perusal of obscure authors that had been neglected by the generality of scholars—and in times of leisure to husbandry and gardening, as appears by his book on a hop-garden, which was the first treatise written on that subject. He also wrote a book entitled "Scot's Discovery of Witchcraft," 401 pages quarto, 1562: the absurd and abominable pretences to which he seems to have first detected publickly, at least in our nation. Scot died in 1599.

The first publication on the subject of hops appeared in 1576, and was entituled—"A perfite platform of a hoppe garden, and necessary instructions for the making and mayntenance thereof; with notes and rules for reformation of all abuses commonly practised therein, very necessary and expedient for all men to have which in any wise have to doe with hops. Now newly corrected and augmented by Reynolde Scot." There may have been an edition previous to the date here used, as Weston writes the author's appearance in 1574, and the "Bibliotheca Britannica" mentions two editions in 1573 and in 1578. We subjoin the contents of the work, as it claims, along with Fitzherbert's book on agriculture, the same priority on a special subject.

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The reformation of a garden of wylde hoppes	56
The reformation of a disordered garden ..	57
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To constitute a perfect platform, the author advises ground that is good for the purpose—a convenient standing, and a proper quantity. Good land he calls rich, mellow, and gentle, and the situation to have the sun shining upon it the greater part of the day. He advises to have a certain term of the land, least another man reap the fruit of labour and expense. He recommends the distance of seven or eight feet between the hills of plants, and two or three roots to be placed in one hole. Four poles, best of alder, are placed in each hole, set as now-a-days, and leaning a little outward one from another. Throughout the work cuts are given of most of the performances, and the book shows a thorough acquaintance with the subject, of which the practice is not very much altered in the present time. The oasts are neatly described and figured, the dried hops are to be brown and yet bright, and the fire is to be of great wood, and not too dry. The book is printed in the old English characters, with the headings of chapters and the titles in the modern type. The getting up of the work is ahead of Fitzherbert's.

VII.—Googe, 1577.

Barnaby Googe was a celebrated poet and translator, who lived in the sixteenth century; but of whom little is known, unless that he was educated at Cambridge, and afterwards entered in Staples Inn. It is conjectured he may have been born about 1538, and is supposed to have been the Barnaby Googe who was a relation and a retainer to Sir William Cecil, Queen Elizabeth's minister, and who by his interest was gentleman pensioner to the Queen. He is thought, with great proba-

bility, to have been the father of Barnaby Googe, Master of Magdalen College, Cambridge, who was incorporated at Oxford in 1605, when King James visited the city. He is said to have been of Albingham, or Alvingham, in Lincolnshire, and grandfather to Barnaby Googe, Esq., who lived there in 1634. The epistle to the book of husbandry is dated at Kingston, February 1, 1557. His first publication was sonnets and epitaphs, and followed by the "Zodiake of Life." He translated, in 1577, "Foure bookes of husbandry, collected and printed at Cologne in 1573, by Conrad Henesbach, chancellor to the Duke of Cleves, in Germany; containing the whole art and trade of husbandrie, gardening, graffing, and planting; with the antiquitie and commendation thereof; newly Englished and increased by Barnaby Googe." On the last leaf, old English rules for purchasing land—in verse. His other works were numerous.

The work on husbandry is managed in dialogues between persons who are three or four in number, and consists of question and reply. The first book is on arable ground, tillage, and pasture; the second on gardens, orchards, and woods; the third on feeding, breeding, and curing of cattle; the fourth on poultry, fowl, fish, and bees. The work is printed in old Eglish type, and contains 360 pages.

The old English rules for purchasing land, are:

First see that the land be clear
In title of the seller;
And that it stand in danger
Of no woman's dowrie;
See whether the tenure be bond or free,
And release of every fee-of-fee;
See that the seller be of age,
And that it lie not in mortgage;
Whether ataile be thereof found,
And whether it stand in statute bound;
Consider what service longeth thereto,
And what quit rent thereout must goe,
And if it become of a wedded woman,
Think thou then on covert baron;
And if thou may in any wise,
Make thy charter in warrantise,
To thee, thine heyres, assignes also;
Thus should a wise purchaser doe.

Googe gives the following authors as his authorities, some of whom were contemporary with Fitzherbert, but none are mentioned by him, and their works are wholly unknown.

S. Nich. Malbee	M. Hen. Brickbull
M. Cap. Bingham	M. Franklin
M. John Somer	H. King
M. Nicas. Yetawent	Richard Andrewes
M. Fitzherbert	Henry Denys
M. Will. Lambert	William Prat
M. Tusser	John Hatche
M. Thom. Wherenhall	Phillip Partridge
M. Rich. Deering	Kenworth Darfroth.

The four bookes of husbandry, as translated by Googe, underwent a second edition in 1586, and in 1614 Gervase Markham republished the work with notes and illustrations, with the view of accommodating German agriculture to the climate of Britain. The attempt had little success, and Googe's work sunk in estimation.

VIII.—Mascall, 1581.

Leonard Mascall wrote several books on agricultural subjects, and has always been reckoned a genius in that department of human industry. Nothing seems to have been known of his parentage, birth, education, or general employments: he only relates of himself that he was chief farrier to King James, and dedicated his work to Sir Edward Montague, Knight.

"The husbandrye, ordring, and governmente of poultrie," was the first work published by Mascall, and is dated in 1581. It is a small 12 mo., of 154 pages, printed in black letter, and dedicated to Mistresse Catharine Woodford, wife to Maister James Woodford, Esq., and Cheese Clarke of the Kitchen to the Queenes Majestie. The matter is headed, "The nourishment and government of poultrie;" and as the work is the first writing on that subject, the chapters are subjoined, as was done with Fitzherbert and Scot.

Chap.

1. The order of Columella for the henne-house
2. Stephanus, his opinion
3. Signes in a good cocke
4. The signes and properties of a good henne
5. When to set your hennes
6. The time best to set your yong hennes
7. Of chickens newly hatched
8. How to keepe egges long
9. Egges to gather and keepe
10. Egges, to have all winter
11. Chickens of a later broode
12. How to feed chickens from the same
13. The pippe, and the cause, to helpe also
14. To helpe the catarte or rewme in poultrie
15. How many hennes to a cock
16. Of hennes that hatches abroad, as in bushes
17. Cause of flux in poultrie
18. Remedies against the flux
19. Against stopping of the belly in poultrie
20. Against lice and vermin in poultrie
21. Of vermin that bytes and stinges poultrie
22. Of sitting hennes that rise in weat and rainie dayes
23. What time to cut young cock chickens
24. Against inflaming the eyes and the hawe
25. Cramming and fatting of capons
26. Meate for hennes and other poultrie, and where and when to feede them
27. To fatte hennes best
28. The feeding of bigge chickens
29. To feede or cramme young pullets
30. Ordering and setting forth poultrie on mirragges

Chap.
31. The order in carving poultrie of some here in Englande
32. Other things necessary to knowe for the keeping of poultrie
33. The nature and governmente of geese
34. Of places and houses for ordering of geese
35. A ground and pasture best
36. To choose ganders and geese with all white feathers
37. The laying and setting of a geese, and feeding the young goslings
38. The fatting of yong geese
39. How many geese to one gander, with other government
40. Of the feathers of geese which are best, and what time to pluck them
41. Of ducks, teales, sheldrakes, and such like
42. How to take four wilde ducks in the covert
43. The common feeding and nature of duckes
44. Of turquie hennes, profite and also disprofite
45. The nourishing of old turquies
46. The age of turquie cocks best to tread
47. Of the turquie hennes sitting, hatching, and nourishing the chickens
48. The feeding and the ordering of turquie hennes and chickens
49. The common feeding of turquies
50. Of peacockes, the nature and feeding
51. The time best to set your pehenne
52. Of the goodnesse of the pecocks flesh, and their nature in laying
53. The hatching and feeding of young pechicks
54. The sicknes of pehennes
55. The nature and feeding of swannes
56. The nourishing and fatting of swannes
57. The order and profite of pigeons, and place for them
58. To replenish your dove-house, and to choose the best breeders
59. Time to feede them, and to maynetaine your broode
60. Of the meate and drinke for pigeons, and flying abrode
61. How to perfume your dove-house, to cause them to breed and to love it
62. Pigeons seeking their meate farre, are raveners of corne
63. To draw pigeons to your dove-house
64. The nature and profite of wood pigeons, culvers, and rough-footed doves
65. How to take owles that haunt your dove-houses
66. For polecats and weasels that haunt your dove-house
67. To take boxardes and staves that molest your dove-house
68. How to stock your dove-house
69. Of pegion dongue
70. Of turtle-doves
71. The ordering and fatting of beavres
72. The ordering and nourishing of partridges
73. Quayles feeding, and their nature
74. The gulles, how to feede
75. Of puets
76. How to fat terantes
77. Of godwits, knots, and stynts

Chap.
78. Of plovers
79. Of the bitter and curlew
80. Of blackburdes and thrustles
81. To make white burdes come of anye egges
82. To make hennes of the colour of your egges ye set her
83. For geese
84. To make hennes lay
85. For breeding capons.

To cause hens to lay eggs all the winter, the author directs to take the croppes of nettles when ready to seed, dry them, and mix them with bran and hempseed, and give it to the hens in the mornings, and also to give them the seeds of cowmake, a weed so called in "Turner's Herbal."

The second work appeared in 1596, and is entituled "the government of cattell, divided into three books: the first treating of oxen, kine, and calves, and how to use bulls, and other cattell, to the yoke or sell; the second discoursing of the government of horses, with approved medicines against most diseases; the third discoursing of the order of sheep, goats, hogs, and dogs, with true remedies to help the infirmities that befall any of them. Also perfect instructions for taking of moals, and likewise for the monthly husbanding of grounds; and hath been already approved, and by long experience entertained amongst all sorts, especially by husbandmen, who have made use thereof to their great profit and contentment."

The copy of the above book in the British Museum is dated in 1662, and has the frontispièce covered with figures, or rather caricatures of horses, cattle, sheep, swine, goats, and dogs. An enlarged figure of a horse is separately delineated, and lines are drawn from each particular part of the body where disease may prevail to the edge of the paper, and there is written the name of the disease, with the number affixed which it holds in the catalogue of disorders: the number amounts to 60.

An edition of Mascall's second work was published in 1680, enlarged by Richd. Ruscan, Gent. In it the figure of an ox is delineated, with lines denoting the diseases as for the horses: the disorders reach to 44.

In 1600 there was published with Mascall's name —"A booke of fishing with hooke and line, and of taking all manner of vermin with engines and traps: suitable for all warrenners, and for sporte and pastime."

The practical knowledge of Mascall relates chiefly to diseases, with a small notice of the animal and its breeding; but such as it is, a large advancement was made by it towards an improved practice.

IX.—Plat, 1593.

Sir Hugh Plat seems to have been of the profession of the law, as he is styled, "of Lincolns Inn,

Gent." He had two seats in the country, at Copthall in Essex, and at Bishopshall in Middlesex, to which he retired at leisure times, and employed himself with soils and manures. The book published with his name in 1594 is a thin quarto of 76 pages, which are headed "The jewel house of art and nature," and the title page bears the designation of "Diverse new sorts of soyle not yet brought into any public use, for manuring both of pasture and arable ground, with sundry conceipted practices belonging thereto." The work is without chapters, or any divisions, and forms one continued essay from beginning to end. To the books of husbandry are added—the art of moulding and casting, a new kind of fire, a boulting hutch, a portable pump, a wholesome, lasting, and fresh victual for the navy, a speedy way for mending any breach done by water, a light garment against all rainy weather, and a new conceit in peter (petre) works.

Sir Hugh Plat had correspondence with all lovers of agriculture and gardening throughout England, and discovered, or at least brought into use, many new sorts of manure, as is testified by his observation on salt, street dirt, and sullage of streets in large cities, clay, Fullers' earth, moorish earth, dung-hills made in layers, fern, hair, calcination of all vegetables, malt dust, soap-boilers' ashes, and marle. He recommended compost and covered dung-hills, but did not much enlarge on the excrements of animals, as the qualities and use were sufficiently known to every country "Corydon." He was much occupied with the nature and investigation of salts, which he made his hobby; he is an enlightened writer, and a valuable pioneer in the trenches of knowledge. Nothing seems known of his parentage, birth, or general relation in life, but he must have been of the higher class of society as his book does show. He makes frequent mention of "Maister Barnabie Googe," and must have read the work of that author. The book now mentioned had another edition in 1653; and in 1595 there was published by Plat "A discoverie of certaine English wants," 4to., London; in 1603, "A new, cheape, and delicate fire of coale balls;" in 1608, "Flores paradisæ," 12 mo., London; in 1653, "The garden of Eden," 4to., London; and "The setting of corne," in no date, or in 1600. The "Garden of Eden" contains an accurate description of flowers and fruits, seeds and herbs, trees and plants. The "Flores Paradisæ" is similarly occupied. "The setting of corne" contains eight chapters, headed as follows:—

Chap.
1. How this invention began
2. The reason why corne doth shoote up into so many eares rather by setting than by sowing
3. The manner of digging and laying of the arable grounds on this new practice.
4. The several instruments for making the holes for the grain, and covering them
5. At what depth and distances your corne must be set
6. Whether it be good to fill the holes with common earth, and prepare the seed before it be set.
7. How to make the choice of your seed corne
8. The difference of yield between the plough and the spade, with some new addition to the plough

Plat relates that the art of setting or dibbling corn, originated with a silly wench, who was employed in setting carrots and radishes, and had some seeds of wheat in the seed-bag, that were accidentally put into the holes, when the stems showed a very superior luxuriance of growth. He relates the mode and way of performing the work, and states the produce to be 15 quarters of wheat per acre, and in the old way of sowing to be only 4 quarters. This estimate shows a practical ignorance of the constitutional ability of any soil, which the author's rank in life had not condescended to ascertain. The treatise on setting corn, is without date, title, or printers name; but "H. Plat, Esquire," is printed at the end.

X.—Hill, 1593.

Thomas Hill, Hyll, or Hylle, was a citizen of London, and wrote a number of books on various subjects. In 1563 there was published by Thomas Hyll, Londoner, "The profitable art of gardening, to which is added much necessarie matter, and a number of secrets, with the phisicke helps belonging to each hearbe, and that easily prepared." And "A profitable instruction of the perfite ordering of bees, with the marvellous nature, property, and government of them, and the necessary uses both of their honie and wax; to which is annexed a treatise intituled—certaine husbandrie conjectures of dearth and plenty for ever, and other matters also meet for husbandmen to know." These two works were printed together, and separately, and the best edition appeared in 1593, of the two works in one volume, which is the copy in the British Museum, and of it the date is here used.

The books are printed in black letter, with the heading, prefaces, and titles in the modern type. Weston dates the publication of the works in 1574, and in his list of authors on husbandry, gardening, botany, natural history, and subjects relative thereto, Hyll's two books seem to be first that were written on gardening and bees, and this priority entitles the contents to be given at length.

The gardening is in two books.

The first booke teacheth the skilful ordering and care to be bestowed on gardens, with necessary helpes, defences, and secrets.

The second book instructeth diverse manner of sowing, setting and ordering of the most pot hearbes, floures, &c., with the care and secrets taught, as well for the health of the bodie, as to the pleasure and delight of the eie.

BOOK I.

Chap.
1. What three points are to be learned of every gardner minding to have a fruitful garden —the health that may be recovered by walking in the same, and the commodity of gardens placed neere to a citie
2. Of the standing of gardens, the water necessarie to them, and of the properties of the ground with the qualitie and temperateness of the aire, and condition besides of the windes
3. Of the consideration and choosing out of good and excellent ground, and the knowledge of every earth
4. How a garden may diverse waies be fenced and inclosed—the manner and secret in making a lively and strong hedge
5. Of the first maze
6. Of the dung and dunging of gardens, with the digging, dressing, levelling, and disposing of the quarters and beds
7. Of the second maze
8. Certaine precepts and rules of ancient men, both in the choise and proper sowing of seedes
9. Of the times in sowing and proper ordring of seedes, with the watring and weeding of the yong plants in the coming up—the divers manner of removing and setting againe of the hearbs somewhat growen upp
10. Certaine helpes and secrets for the garden seeds, as well before as after sowing them, that they may not be harmed by any inward or outward means
11. Certaine special times to be noted and observed, either for their aid or savour to be chosen, or for their annoyance and incommoditie to be eschewed for sowing, planting, or graffing
12. Certaine helpes and secrets against haile, lightning, tempests, mistes, rust, frosts, and burning heat
13. Certaine helpes and secrets against the garden woormes, the greene flyes, the canker woormes, the great moths, and snayles with shelles and without shelles, that harme and gnawe as well the leaves of trees and fruites, as the hearbes and young plantes coming up
14. Certaine helpes and secrets against the garden moles, pismires, gnats, flies with the long hinder legs, breses, field mice, backes, serpents, frogs, and todes, which gnawe, harme, and destroy, as well the trees and fruites, as other hearbes and floures.

BOOK II.

1. Of the ordring, care, and secrets of the lettuce
2. Of the ordring, care, and secrets both of endive and succory
Chap.
3. Of the ordring, care, and secrets of the hearbe blete
4. Of the ordring, care, and secrets of the hearbe spinage
5. Of the ordring, care, and secrets of the orach, or arage
6. Of the ordring, care, and secrets of beetes
7. Of the ordring, care, and secrets of coleworts
8. Of the ordring, care, and secrets of the land cresses
9. Of the ordring, care, and secrets of the parcely
10. Of the ordring, care, and secrets of sperage
11. Of the ordring, care, and secrets of savory
12. Of the ordring, care, and secrets of the running time
13. Of the ordring, care, and secrets of the Lombardy lovage
14. Of the ordring and care of the greater or garden mallowes
15. Of the ordring, care, and secrets of fennel
16. Of the ordring and care of the annis
17. Of the ordring, care, and secrets of commine
18. Of the ordring, care, and secrets of the coliander
19. Of the ordring and care of the mustard seedes
20. Of the ordring and care both of the chervil and caper
21. Of the ordring and care of the hearb dill
22. Of the ordring, care, and secrets of rue
23. Of the ordring and care of the hearbe isope
24. Of the ordring and care of the mints
25. Of the ordring and care of the garden time
26. Of the ordring and care of the hearbe organie
27. Of the ordring, care, and secrets of violets
28. Of the ordring, care, and secrets of all roses
29. Of the ordring, care, and secrets of the hearbe basil
30. Of the ordring, care, and secrets of the sweete marjoram
31. Of the ordring, care, and secrets of the marigold
32. Of the ordring and care of the lavender
33. Of the ordring and care of the spikenard
34. Of the ordring, care, and secrets of the white lillie
35. Of the ordring, care, and secrets of the wood lillie
36. Of the ordring and care of the fleur-de-luce
37. Of the ordring, care, and secrets of the pionie
38. Of the ordring and care of the white poppie
39. Of the ordring, care, and secrets of the floure petilius
40. Of the ordring and care of the velvet floure, or floure armour
41. Of the ordring, care, and secrets of the gilifloure
42. Of the ordring and care of the strawberries
43. Of the ordring and care of the borage, and also of the buglosse
44. Of the ordring and care of rosemarie
45. Of the ordring and care of the hearbe germander
46. Of the ordring and care of the blessed thistle
47. Of the ordring and care of the hearbe wormwood

Chap.
48. Of the ordring, care and secrets of sothernwood
49. Of the ordring, care, and secrets of the hearbe sage
50. Of the ordring and care of the purselaine
51. Of the ordring and care of the pennyroyal
52. Of the ordring, care, and secrets of the artichoke
53. Of the ordring, care, and secrets of leekes
54. Of the ordring, care, and secrets of the garden onyon
55. Of the ordring, care, and secrets of the garlicke
56. Of the ordring, care, and secrets of the great garlicke
57. Of the ordring, care, and secrets of the radish
58. Of the ordring, care, and secrets of the navew
59. Of the ordring, care, and secrets both of the parsnip and yellow carrot
60. Of the ordring, care, and secrets of the mellons and all kinde of pompions
61. Of the ordring, care, and secrets of the cucumber
62. Of the ordring, care, and secret of the gourd
63. Of the ordring and care of the beane of Egypt
64. Certaine necessary precepts in the cutting up, plucking away, gathering, and preserving of the most hearbes, flewers, seedes, and rootes, serving especiallye to medicine.

This work reaches to 164 pages of small quarto size.

The book on the perfite ordering of bees, with the annexed treatise, contains 92 pages of the same size as the work on gardening; the contents are:—

1. Why bees are named to be creasted or parted betweene, or as it were tinged, or rather pleighted—what work the swarme newe gathered in the hive do first take in hand, and whether they may live after their stinges are gone
2. Who first taught the preparation and increasing of bees, and found out the use of honye
3. How bees do naturally engender
4. Of the imperfecte bees, which man properly name droane bees
5. Whether the bees draw breathe, or have any blood within them
6. Of the great utilitie and profite of bees to mans use
7. Of the care and diligence of bees
8. Of the marvellous government of the king of bees, and of the obedience which they use to him
9. What kind of bees be best, and rather to be chosen
10. Where hives of bees ought especially to be placed
11. What things bees do chiefly abhor and greatly hate
12. By what signes men may knowe when the bees are diseased, and how they may be cured
13. What manner of person the keeper of bees ought to be

Chap.
14. By what means the swarme cometh forth, and may be preserved when flying away
15. Of the bees newe setled in a swarme together, and taken and recovered againe
16. Which are the best and fittest hives for bees
17. Of the cleanlinesse and sweetenes of the keeper of bees, and how the hives ought to be fenced about and prepared within
18. How bees lacking honye may be fed in the time of their necessitie
19. How the dead bees may be restored to life again
20. Of the battailes that bees have sometimes amongst themselves
21. How bees lost may be recovered and form againe
22. That the bees stingeth no person that commeth neare to their hives
23. What the honye is, and how from the hives the same may be prepared for use
24. When and how the hives ought to be gelded
25. What honye is accounted best
26. Of the vennomous honye, and of the wonderfull honye of Creta
27. Of the miraculous worthinesse of honye
28. How profitable the use of honye is in medicine
29. Of the drinke of honye, which they call the mulse water, or sweete water of the Romaines
30. Of the drinke oenamell, which is made of pure wine and honye
31. Of the singular water of honye gotten by distillation
32. An other manner of distilling the honye, more at large taught
33. The manner of distilling a water from honye named the quintessence
34. The manner of drawing and making wax of the combes
35. What waxe is best allowed, &c.
36. Of the great commoditye and benefite of waxe in medicines
37. How to make waxe white
38. Of that which is a staye of the combes, and made for a defence of bees
39. How to make rede waxe
40. How to drawe a very profitable oyle out of waxe, for sundry uses
41. Another way of drawing the oyle of waxe most noble, and doth marvellously helpe the cold gout, the sciatick, the swelling of the legges, and all other griefs of a cold cause.

The additional treatise contains:—

1. Certaine husbandrie conjectures of dearthe and plenty for ever
2. An everlasting prognostication of the state and condition of every yeare, by the onely kalends of Januarie, written by the ancient and learned Leopol. Aust., and other for the commoditie of the wise husbandmen
3. How to foreknow the state of the yeare by the only rising of the dogge starre, out of the husbandrie of Diophanes

Chap.

4. Other profitable instructions right necessarie for husbandmen to know
5. A most profitable rule for the preservation of mans health throughout the twelve months of the yeare, after the mind of divers learned men of the university of Padua
6. Of the falling sick on any of the week daies, out of that anciente phisition Hippocrates
7. Of those manifest signes which declare raine to follow
8. Of those manifest signes which declare faire weather to follow.

The booke of the art or craft of planting and graffing concludes the volume, and contains the following heads of matter :—

To graffe frute that shall have no core
To make apples red
To make a pear tree beare much frute
To revive an old tree that is decayed
How to make us our frute tree bring forth sweet frute
The ordring of an almond tree, walnut tree, cherry tree, and peach tree
How to nourish the peach tree if it begin to wither
How to water plants when they wax dry
The ordring of the apple tree
The ordring of the quince tree
The ordring of the cherry tree
At what time prunes ought to be planted
How the medler ought to be planted
The sowing of roses in a garden
How to plant white grapes
How to set vine plants two and two together
To make grapes grow on a plum tree or cherry tree
The best times to plant and graffe in
How to set all manner of peppins, kernels, and grains in the earth
Of the manner and changing of the frute of the pepin tree
How you make an orchyard in few years
How you ought to set the pine tree
To set damsons or plum trees
How to remove a setting
How to remove a great tree
How to keep late set plants
How you may keep cherries good a yeare
How you may set chesnuts
The order how to plant or set trees at large
The best way to clense and proine, or dresse the rootes of trees
The manner of graffing
How to graffe divers frutes on one stocke
How to groffe all sorts of trees
How to graffe apple trees, quince trees, pear trees, and medlar trees
How to chuse your trees for graffes
How you may keepe graffes a long time
To have frute without cores
After what manner ye ought to begin to graffe
How to trimme your graffes
How to graffe vines on cherry trees
To make a tree beare divers frutes.

This notice of Hyll's book may seem long for the occasion, but being the first publication on the subjects, a curiosity arises to see the original conceptions that were entertained, and the manners that prevailed of arranging the materials. Hyll's book is an interesting relic, and will be perused with pleasure by every lover of the two subjects that are treated. Bees are the farmer's object in some degree, and accordingly a place has been given in our agricultural record to the first publication on the care and management of the insect.

XI.—Churchy, 1599.

G. Churchy, of Lyons Inne, wrote a work entitled "A new book of good husbandrie." This statement is taken from Weston's catalogue of writers, who alone mentions the name. No author or work of that title is found in the "Bibliotheca Britannica," nor in the catalogue of books in the British Museum, nor in George the Fourth's library. The late Mr. Loudon has not mentioned any author or work of that name.

XII.—Surfleet, 1600.

Richard Surfleet, Practitioner in Physicke, wrote "The countrie farme." It is said he only translated the "Maison rustique," a French work of Charles Stevens; while others contend that he composed it himself. The book is not now found, and the author's name is rarely known.

XIII.—Massie, 1606.

Massie, or Maxie, is stated by Weston to have been the author of "A treatise on drilling corn, in 4to." His is the only authority, as no book on agriculture under that name as an author is found in any other catalogue of authors or books. Our search was eager to see the ideas of drilling corn at that early period of agricultural practice; but the disappointment was complete. Weston quotes many otherwise unknown authors.

XIV.—Norden, 1607.

John Norden was born of a genteel family in the county of Wilts, about the year 1548. He became a Commoner of Hart Hall in 1564, and took the degree of arts, that of master being completed in 1573. He was patronized by, or was servant to, William Cecil Lord Burleigh and Robert Earl of Salisbury, his son. He lived beyond the year 1624. Weston styles him Sir John Norden, but no other account exceeds John Norden, Gent.

Norden is chiefly known from a publication entitled "The Surveyor's dialogue, very profitable for all men to peruse, but especially for gentlemen, farmers, and husbandmen, &c., in 6 books." It passed through three editions, in 1607, 1610, and in 1618, in 4to. It forms a thick volume, being printed and bound with "A discoverie of sundrie errors and faults committed by land-meaters, by Edward Worsop, Londoner, 1582;" and "The

most profitable and commendable science of surveying lands, tenements, and hereditaments, by Valentine Leigh, 1577;" and "Epitome of surveying methodized, by W. Folkingham, 1610." These works are scarcely agricultural; yet, as a book or chapter is generally devoted to the improving and bettering of lands, the names are given in lists of authors. The fifth book of Norden's dialogue is, "Shewing the different natures of grounds, how they may be employed, bettered, reformed, and amended." Similar notices are made by the above-mentioned authors.

Norden was an ardent tradesman, and laboured very extensively. He wrote "A topographical and historical description of Cornwall, and of Middlesex, and of Hertfordshire, and of the County of Northampton; and a guide for English travellers, showing the distances of towns, and the respective directions." The surveys were much esteemed at the time, and were well executed. He also surveyed Berks and Surrey, but never published the works. He is said to have been much devoted to theological studies, and combined both the surveyor and the divine. Several works of a highly moral and religious character have been attributed to John Norden. The similarity of expressions in the surveying and theology almost identify the author. He was much esteemed, but was little provided for, and had many tokens of respect from the highest quarters of society.

In "The surveyor's dialogue" the person who answers the questions is termed "Surveyor," and to be understood as the anthor himself. The replies show a full readiness of subject, and very enlarged and enlightened views on every point that is discussed. Learning was at that time not much advanced, and Norden must have been a very superior person.

The printing of old English characters was not at that time wholly disused, as, in "The surveyor's dialogue," the questions are printed in the Saxon characters, and the reply in the Roman type; but the custom was fast giving way. The labour of reading was very much reduced by the introduction of the Roman characters, and the speed of knowledge was accelerated.

XV.—Butler, 1609.

The Rev. Charles Butler, M.A. of Magdalen College, Oxford, wrote "The feminine monarchie; or, the history of bees," 4to. London: 1609, 1623, and 1634. Also, "The principles of music in singing and setting." "The English Grammar," in 1633; and, in 1625, the "De regula depropinquitate matrimonium impediente." The book on bees had previously been one in the smaller form of duodecimo, and had been well received. The work now quoted is entitled "The feminine monarchy, or the histori of bees, shewing their admirable nature and properties, their generation and colonis, their government, loyalti, art, industri, enemis, wars, magnanimite, &c.; together with the right ordering of them from time to time, and the sweet profit arising thereof." Written out of experience by Charles Butler, Magd. The contents are largely illustrated with figures of hives and stools, and filled with quotations from every author on the subject. The contents are in ten chapters:—

1. De first—of de nature and properties of bees and their queen.
2. De second—of de bee-garden, and seats for hives.
3. De third—of de hiv's, and de dressing of them.
4. De fowrt—of de breeding of bees, and of de dron.
5. De fift—of deir swarming, and de hiving of them.
6. De sixt—of deir work.
7. De sevent—of deir enemies.
8. De eight—of feeding dem.
9. De nint—of removing dem.
10. De tent—of de fruit and profit of dem.

The language and orthography of Butler are most peculiar, and much more antiquated than in the time of Fitzherbert. His poetry is shown as under:—

For, if old tim's admir' Callicrates
For ivori emmets—and Mermecides
For framing of a rigged ship so small
Dat with hir wings a bee can hid' it all—
Admir' we then d' All wise Omnipotenc',
Whi' doo't within so narrow spac' disperc'
So stiff a sting, so stout and valiant hart,
So loud a voyc', so prudent wit and art;
Deir wel rul'd stat' my sowl so mu' admir' it,
Dat, durst I loos' the rein of my desir's,
I gladly cool'd digres from my design,
To sing a whil' teir sacred disciplin'.

In the chapter of hiving bees from swarming, the author has set to music the "Melissomelos," or the bees' madrigal, beginning "As of all stat's the monarchie is best," and extending to four pages, in mean, tenor, contra-tenor, and bassus. The author thinks that all orderly processions, with outriders and trumpeters leading the van, have been copied from the bees, as in swarming the best attired go foremost, the queen in the centre, and a motley multitude bring up the rear. He was fully sensible that a large part of human knowledge has been derived from the brutes, and his book shows the work of an educated person treating scientifically a subject of great value and of a large curiosity.

XVI.—Vaughan, 1610.

Rowland Vaughan, Esquire, wrote a work entitled "Most approved and long experienced water-

works, containing the manner of winter and summer drowning of meadow and pasture, by the advantage of the least river, brooke, fount, or water-rill adjacent, thereby to make those grounds (especially if they be drye) more fertile ten for one."

As also a demonstration of a project for the great benefit of the commonwealth generally, but of Herefordshire especially.

The author dedicates his "watry" workmanship to the Earl of Pembroke, and thinks it was forbidden to former creatures to handle the subject. He had been of Queen Elizabeth's court, afterwards served in the Irish wars, and then retired to his father's home in the county of Hereford. He again served in the low country wars, and, at last marrying, he retired to a country life. The book is one continued essay, which the author calls "The manner of my drownings," and extends to 114 pages of small octavo. The author had observed the casual effects of water on the growth of grass, and he employed it by artificial directions. His proceedings did not extend beyond leading one main trench to convey water from a stagnant river, or from a dam constructed for the purpose; but his book and practice are the first notice of watering lands in British agriculture.

XVII.—Folkingham, 1610.

W. Folkingham, Gent., wrote a book called "Epitome of surveying methodised," 1610. It is bound along with Norden's "Surveyor's dialogue," and the "Treatises on surveying," by Leigh and Worsop. He also wrote "A compound ale, which is a generall purge and generous medicine;" London, 1623, 12mo. And, "Brachigraphy; or, the art of shorte-hand writing," 8vo. The synopsis of surveying is styled "Feudigraphia, or epitome of surveying methodised, anatomizing the whole corps of the facultie, viz., the materiall, mathematicall, mechanicall, and legal parts." There are four sections of 88 octavo pages, treating the materials of possession, as earth, water, quarries, mines, situation and residence of grounds, measuring and plotting, natures and properties, tenures, rights and fees, issues, rents, privileges, and other accruements, marshalling and digesting the whole survey in field entries, rough books, and engrossing.

The art of survey is distinguished into two parts, active and passive: the former being the feudigrapher, which consists in operation and estimation; the latter relates to possessions, as they consist of parts essential and accidental. In the ideas of this author are found the germs of the gross rental, entry and observation books that are now kept by the agents on extensive landed estates.

XVIII.—Gooch, 1614.

Bernard Gooch wrote "The whole art of husbandry," London, 1614, 4to., which treats of lands, gardens, woods, and orchards. This statement is taken from the "Bibliotheca Britannica." No author of that name is mentioned in any other list of authors, nor in the catalogues of books in the British Museum. Weston writes the same title of Barnaby Googe's work, reprinted in that year from the revising care of Markham. It may have happened that the "Bibliotheca Britannica," having seen the title of the work, has written mistakingly the christian name and surname of the author, as Bernard Gooch differs not very widely from Barnaby Googe. The former name not being found in any other place renders this conjecture very probable.

XIX.—Rathbone, 1616.

Aaron Rathbone wrote "The surveyor," in four books, in folio. The first book treats definitions, theorems, and approved truths of geometry; the second contains geometrical problems; the third applies the foregoing books to measurement of lands, with the use of the instruments, the theodolite, plain table, and circumferentor; the fourth book is the legal part, and contains what the manor is, the perquisites, casualties, and profits, in fines, heriots, reliefs, escheates, and forfeitures; in tenures by fee-simple, fee-tayle, courtesee, issue extinct, in dower, term of years, and by tenant at will. Rents and reprisals are largely treated, and the manner of holding the various kinds of feudal courts. Examples are given of the surveys of townships, arranged on the left and right hand sides of the book, in the nature of perquisites, with the observations and particulars. The work seems the most valuable of the kind that was possessed by those times.

XX.—Speed, 1626.

Adam Speed, Gent., wrote "Adam out of Eden; or, an abstract of divers excellent experiments touching the advancement of agriculture;" London, 1626, 1659, 12mo. And also, "Husbandman, farmers', and graziers', compleat instructor;" London, 1697, 12mo. The first work only is found in the British Museum, and is in a small duodecimo of 180 pages, in 31 chapters, which are parted into observations, as Observ. 1, 2, 3, &c. The first chapter sheweth how ground may be raised from the value of £200 yearly to the sum of £2,000 by means of rabbits, which are to be kept in fed enclosures, and indulged with the shelter of sown furze and broom. The calculations mount rapidly, as does the pen of every theorist on the paper, where it meets no obstacle of progress. The author knew turnips and potatoes, and mentions

their culture and use. Clover grass is noticed in connection with the name of Sir Richard Weston, who brought the plant from Flanders. Hops and flax are briefly noticed. To fatten fowls and all poultry, "Boil butcher's blood with bran or grains into the consistence of a pudding, which feed the beasts very fat; also, boil carrots, turnips, and parsnips with bran or coarse pollard; and give acorns bruised to fatten turkies; soak crusts and chippings of bread in beer or milk, which will quickly fatten capons and hens." The author makes frequent mention of Sir Richard Weston, Hartlib, and Mr. Plat—meaning, no doubt, Sir Hugh Plat, already noticed. Mr. Speed must have been in respectable society, though no intelligence can be got of his birth and parentage.

The following quotation from Speed shows that rural poetry had not much improved since the days of Tusser.

"A digression to the usage of divers countries concerning the tillage.

Each soyl hath no liking of every grain,
Nor barley nor wheat is for every vein:
Yet know I no country so barren of soyl,
But some kind of corn may be gotten with toyl.

Though husband at home be to count the wot what,
Yet thus huswife within is as needful as that:
What helpeth in store, to have never so much,
Half lost by ill-usage? ill huswife's and such."

XXI.—Markham, 1631.

Gervase, Gervas, or Jarvise Markham, was the youngest son of Robert Markham, Esquire, of Gotham, in the county of Nottingham. He bore a captain's commission in the army of Charles I. during the civil wars, and was accounted a good soldier, as well as a good scholar. The time of his birth, death, and also the other particulars of him, are utterly unknown.

Markham was a very voluminous author, and is thought to have been the first hackney writer in England, or a person that writes for hire. The agricultural works only are to be noticed here—"The English husbandman," in two parts; London, 1613, 1635. "Farewell to husbandry, or the enrichment of all sorts of barren ground;" London, 1620, 4to. "Cheap and good husbandry, for the well ordering of the beasts and fowls;" London, 1626, 1631, 4to. "Enrichment of the Weald of Kent;" London, 1620, 1631, 4to. "The country farmer;" London, 1616, folio. Markham wrote largely on horsemanship, horses, their management and diseases. His works were in much repute, and often reprinted.

Markham died in 1636, and is supposed to have been born about the middle of the preceding century, as, when in the prime of life, he was champion and gallant of the Countess of Shrewsbury in 1591, and dangerously wounded in a duel by Sir John Holles. He was a portionless son, and encountered the usual unsettled life of that class of the patrician order of society. He is said to have been a good scholar, being perfect master of the French, Italian, and Spanish languages, and cultivated the muses at an early age. He wrote, or assisted in writing, a tragedy called "Herod and Antipater;" and "Sion's Muse, or Song of King Solomon," in eight eclogues, in 1596. The levity of this song gave great offence to the Puritanical clergy, who loudly censured Markham by name, and some information has placed his character in rather an equivocal light. The works on horses show that the author delighted much in rural masculine sports, and was a gallant courtier.

Markham published, in 1616, the "Country farm, or Maison rustique of Liebault," which was first translated by Surfleet, who has been already noticed. It was enlarged by Markham, with quotations from Spanish and Italian authors. He also edited a publication of the works of Barnaby Googe. His ideas of rotation of crops were nothing advanced beyond the days of Fitzherbert, as he advises two grain crops in succession, and another grain crop after a manuring of the land by folding of sheep. He recommends the use of earthy manures, as marl and chalks. It appears that his works on husbandry were once held in great esteem, as may be judged by the following agreement between him and the Stationers' Company, which may have arisen from the booksellers' knowledge of the value of Markham's works, and their apprehensions that a new performance of the same subject might be hurtful to the treatises then circulating. It is as follows:—

"Md.—That I, Gervase Markham, of London, Gent., do promise hereafter never to write any more book or books to be printed of the diseases or cures of any cattle, as horse, oxe, cowe, sheepe, swine, and goates, &c. In witness whereof, I have hereunto sett my hand, the 24th day of Julie, 1617.

"Gervis Markham."

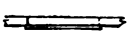
The name of Markham is always put forth as a leading author in the history of British agriculture. He was an educated person, and thereby qualified to take a comprehensive view of the subject, and to range it beyond the narrow sphere of the common entertainments. Markham lived in the commencement of the civil commotions in Britain, but did not see the fruits of the agitation; his was a generation that did not partake the vast influx of altered knowledge which burst upon every department of human employments from foreign intercourse, and the enlargement of the human mind

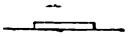
from the spread of education. His "Farewell to husbandry, or the enrichment of all sorts of barren grounds," forms part of a thick octavo volume of "Tracts on agriculture," printed in 1620. It is divided into seventeen chapters, containing 160 pages, along with the works of Leonard Mascall on planting and graffyng. The general directions improve arable lands by means of earthy manures, and grassy lands by watering and top dressing. The "English husbandman" is drawn into two books: one on the knowledge of husbandrye duties, the nature of all sorts of soils, the manner of tillage, the diversity of ploughes, and all other nstruments; the second part contains the art of planting, grafting, and gardening, the use of vines, the hope garden, the preservation of all sorts of fruits, the draught of all sorts of mazes, knots, and other ornaments; printed in 1635. The third chapter is entitled "Of the situation of the husbandman's house, the necessaries thereto belonging, together with the model thereof." The following model is copied from the booke, and forms a curious illustration of the ideas of those times anent the farmer's accommodation, among the better classes of society in which Markham moved.

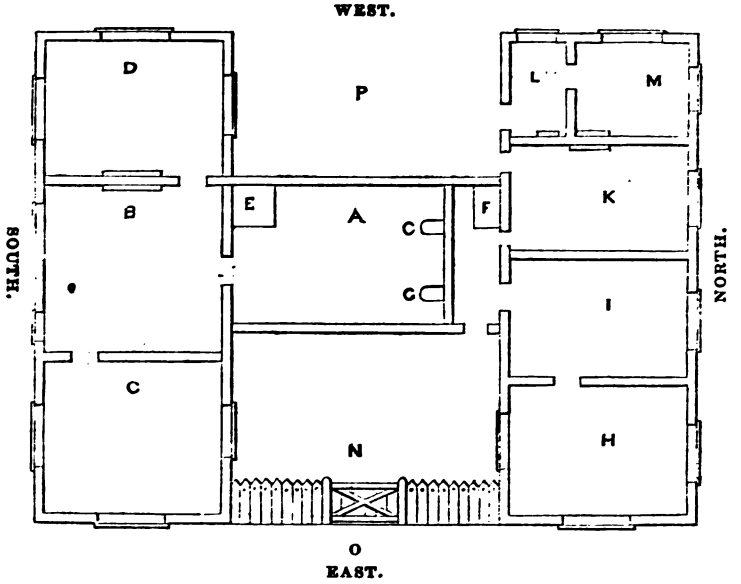
The following plan is given by the author for the use of the plain husbandman, and not to please men of dignity, and is explained as follows:—

A. Signified the great hall.
B. The dining parlor for entertainment of strangers.
C. An inward closet within the parlor, for the mistress's use for necessaries.
D. A stranger's lodging within the parlor.
E. A staircase into the rooms over the parlor.
F. A staircase into the goodman's rooms over the kitchen and buttery.
G. The skreene in the hall.
H. An inward cellar without the buttery, which may serve for a larder.
I. The buttery.
K. The kitchen, in whose range may be placed a brewery lead and convenient ovens, the brewing vessels adjoining.
L. The dairy-house for necessary business.
M. The milk-house.
N. A faire sawne pale before the foremost court.
O. The great gate to ride in at the hall dore.
P. A place where a pumpe would be placed to serve the offices of the house.


This figure signifieth the dores of the house.


This figure signifieth the windows of the house.


This figure signifieth the cheminies of the house.



The garden and orchard are planted on the south side of the house; the west yard contains a pond of water and a gravelled court; on the north side are the farm buildings, as stables, ox-house, cow-house, and swine cotes, the doors and windows all opening to the south. On the south side of the base court are built the hay barnes, corne barnes, houses for hens, ducks, and geese; and over crosse both these sides are hovels for pease, of good and sufficient timber, and beneath are stowed the cart, wayres, tumbrels, ploughes, harrowes, and such like, together with plough, timber, and axle-trees, in order to be kept dry, as wet doth soon rot and consume them. The house is built of timber in the walls, or of stone and lime, or of studde and plaster, covered with lime and hair. Bay windows

are much recommended, and turrets to be raised in the corners.

Figures are given of ploughs with very short handles; the plough is given with two wheels on the end of the beam as now used, and recommended for level lands of a light sandy soil. The mould-board is square: the upper side extends from the middle of the coulter which it touches, to the hind body of the plough. The harrow is very similar to the present implement of that name: the width exceeds the length. The roll is a curiosity: the shafts of draught are attached to each end, and are narrowed in front to a width of the horse's action, where the animal is attached; the material is wood, and thirty inches in girth.

A large portion of the writings on rural subjects in the times now mentioned consisted in the managements of trees, fruits, and orchards. These objects had preceded the practice of agriculture, but gradually shrunk into the legitimate sphere according as the cultivation of land was extended. Markham occupies less room in this way than the preceding writers; but his ideas do not seem to have led any advance in the progress of improved practice. He appears to have known the routine then followed, and nothing more.

At the date in which we write the old English type had disappeared from printing, and Markham's works are wholly in Roman characters.

XXII.—Digges, 1631.

Leonard Digges was born at Digges' Court, in the parish of Barham, Kent, in the early part of the 16th century; died about 1570. He was an able mathematician, and wrote several geometrical works, some of which were edited by his son, Thomas Digges. The book on surveying is called "Tectonicon," briefly showing the exacte measuring and spedye reckonynge of all manner of land, and squares, tymber, stones, steeples, pyllars, globes, &c.; London, 1556, 4to. Again, in 1570 and 1585, republished by his son; London, 1592, 1637, 1647, and 1656, 4to. Weston ascribes to Digges "The shepherds' calendar," in folio, with wooden cuts, black letter, 1631; but no list of the author's works notices any book of that name.

The first editions of "Tectonicon" are printed in black letter, and the latter copies contain 60 pages of small quarto. The geometrical figures are drawn in the usual way, and the dotted lines show the taking of dimensions. Good rules are given for surveyors, joiners, masons, carpenters, &c. The book was much esteemed, and passed through several editions.

XXIII.—Lever, 1634.

John Lever, Gent., wrote "The ordering of bees; or, the true history of managing them from time to time, with their honey and wax;" London, 1634, 4to. The book contains 71 pages of continued dialogue between two persons, "Tortona and Petralba," and shows an accurate knowledge of the management of bees, discussed in the usual way of those times.

XXIV.—Calthorpe, 1636.

Charles Calthorpe, of the Honourable Society of Lincoln's Inn, Esq., was the author of the work entitled "The relation between the lord of a manor and the copy-holder, his tenant;" London, 1636. The contents are said to be the learned readings of that excellent and famous lawyer, the name above written, and fill 100 octavo pages of a large size. It is a legal production of very considerable value in the opinion of qualified judges.

XXV.—Remnant, 1637.

Richard Remnant wrote the "Historie of bees," shewing their nature and usage, and the great profits of them; whereunto are added the causes and cure of blasted wheat, hops, rie, and fruit; and the causes of smutty wheat. The book fills 45 octavo pages, in which the bee is treated in the usual way. Wheat is blasted by windes, or by mildewes, which last are cured by running a rope over the wheat, held by a person at each end. Smut in wheat arises from the seed and land, or both; it is cured by steeping the wheat in a certain ingredient, to be afterwards made known by the author.

XXVI.—Platten, 1638.

Gabriel Platten lived in the reigns of Elizabeth, James I., and Charles I., and during three or four years of the Commonwealth. He was an ingenious and very adventurous writer, and did not deal much in practical facts. He wrote "Treatise of husbandry," London, 1638; "Discoverie of infinite treasure, hidden from the worlds' beginning, in the way of husbandry," London, 1636, 1639, 4to.; "Discoverie of subterranean treasure, in all manner of mines and minerals, from the gold to the coal, &c., with directions for finding them," London, 1639; "Observations and improvements in husbandry, with twenty experiments," London, 1639, 4to.; "The profitable intelligencer," London, 1644, 4to.; "Recreatio agriculturæ," London, 1646, 4to.

The first and last-mentioned works are not found in the British Museum—a matter of regret, as the books appear from the title to have been the most practical of the author's productions, and qualified to show the merits of the writer. The two "Discoveries of treasures" are bound together, and form a thin quarto of 92 pages. The "Profitable intelligencer," communicating his knowledge for the general good of the commonwealth and all

posterity, contains 8 pages of quarto size, bound in a volume of letters and sermons of that period. The subject is in the form of a letter, and contained in vague and trifling speculations without any definite prescription.

The writers who immediately followed Plattes all allowed his genius—that he had a bold adventurous cast of mind, and preferred the faulty sublime to the faulty mediocrity—that he was an original genius, and an ingenious writer—a singular honest man—and that he had as excellent a genius in agriculture as any man that ever lived in this nation before him. It seems he was a very needy person, and was much relieved by Hartlib, to whom he bequeathed his unpublished papers. It is said he was found dead in London streets, in a state of extreme destitution, and that he was very much neglected during his whole lifetime. This statement has been contradicted, without any better account being substituted. Weston gives to his name "The Jewel-house of art and nature," which is known to have been the work of Sir Hugh Plat. Nothing has been discovered of the origin, lineage, or place of nativity of Gabriel Plattes.

XXVII.—Vermuiden, 1642.

Sir Cornelius Vermuiden was a Dutchman by birth, and held the post of colonel in the army of Cromwell. He wrote "A discourse touching the drayning the great fennes lying within the severall counties of Lincolne, Northampton, Huntington, Norfolk, Suffolk, Cambridge, and the Isle of Ely, as it was presented to his Majestie;" London, 4to, 1642. The work is bound singly in a thin quarto size, and occupies 32 pages. It was ordered to be printed by the Committee for the Great Level, together with the mappe, in order that exceptions may be taken (if any be), and other designs may be offered. A local knowledge of the ground was at any time requisite to understand any plan devised for draining the fens, and now, when so many alterations have been made by the subsequent operations, any reference to Vermuiden's designs would be wholly misspent labour; but at the time he wrote on the subject it seems no objections were raised against his schemes of embanking the rivers and draining the swamps.

XXVIII.—Weston, 1646.

Sir Richard Weston, of Sutton, in Surrey, was Ambassador from the Court of James I. in 1619, to the Elector Palatine, and King of Bohemia. He wrote "A discourse of husbandrie," used in Brabant and Flanders, shewing the wonderful improvement of land there, and serving as a pattern for our practice in this commonwealth; 4to, 1645. This book is issued under the name of Hartlib, to whom the MS. was addressed, without the author being known. Sir Richard also wrote "Brief discoveries of ways and means for manuring and improving land," 1646.

It has ever been acknowledged that Sir Richard Weston laid the foundation of the improved agriculture of Britain. In the low countries of Brabant and Flanders he saw the clover plant, and also the turnip, both of which very much attracted his notice, and induced him to state their qualities in writing, and recommend their use to his countrymen. The genius of the British people was then rapidly bestirring itself, and sought every avenue of development. Weston's book has always been reckoned an excellent work, and shall have the due examination in the following author's life.

XXIX.—Hartlib, 1646.

Samuel Hartlib was the son of a Polish merchant, who settled at Elbing, in Prussia, where he built the first house of credit, and established the English Company there. His family was of a very ancient extraction in the German empire, there having been ten brothers of the name of Hartlib. Some of them were privy councillors to the Emperor, some to other inferior princes, some syndics of Augsberg and Norimberg. He was the issue of a third wife, his father having married two Polonian ladies of noble extraction. His third wife seems to have been an Englishwoman, for she had two sisters very honourably married here: one first to a Mr. Clarke, then to Sir Richard Smith, and a third time to Sir Edward Savage; the other sister married Mr. Peak. Warton says Hartlib came over into England about 1640. He carried on an extensive agency business, and engaged himself with literary subjects. He wrote several theological tracts, and was the esteemed associate of the talented men of his time, including Milton, who dedicated to him his "Tractate on education." He assisted in establishing the embryo of the Royal Society. The time of his death is unknown.

Hartlib published "Discourse of husbandry used in Brabant and Flanders, showing the wonderfull improvements of land there;" London, 1645, 1650, 4to. "Legacy; or, an enlargement on the discourse of husbandry used in Brabant and Flanders," with an appendix; London, 1651, 1652, 1655, 4to. "Essay on the advancement of husbandry and learning, with propositions for erecting a college of husbandry;" London, 1651, 4to. "The reformed husbandman; or, a brief treatise of the errors, defects, and inconvenience of our English husbandry, in ploughing and sowing for corn, with the reasons and general remedies, and a large, yet faithful offer or undertaking, for the benefit of them that will join in this good and

public work;" London, 1651, 4to. "Discovery for division or setting out of waste land in England and Ireland." "The complete husbandman; or, a discourse of husbandry both foreign and domestic."

It has been noticed that the "Discourse on Flemish husbandry," was written by Sir R. Weston, and published by Hartlib; in like manner the "Legacy" was compiled by R. Child, and other persons eminent for skill in agriculture. Hartlib himself never had any practice or connection with agriculture, but received it through the medium that was presented to him. "The husbandrie of Brabant and Flanders" occupies 27 pages of small quarto, and details the practice of those places through which Sir Richard Weston had travelled, in the use of flax, clover, and turnips; Devonshiring (paring and burning) of land is much recommended, and to sow clover and turnips upon the ground thus treated. Flax, turnips, and clover were at that time grown in England, but differed as much from the crops in Flanders as the wild plants differ from those raised in a garden. The language shows a learned author, and the germs are evident of an improved agriculture.

The "Legacy" forms an enlargement of the former work, adding the best performances of English practice on the knowledge which the author possessed, or could learn of its use. The work was only drawn up at Hartlib's request, and, passing through his correction and revision, was published by him. It consists of one general answer to the following query, namely: "What are the actual defects and omissions, as also the possible improvements, in English husbandry." The real author was Robert Child, as was before noticed. To it are annexed various correspondences from persons eminent for skill in agriculture at this time, as C. D. B. W. R. H. T. Underhill, Henry Cruttenden, W. Potter, &c.; as also, the "Mercurius lectificans," and twenty large experiments by Gabriel Plattes; together with annotations on the "Legacy," by Dr. Arnold Beati; and replies to the animadversions, by the author of the "Legacy." In the preface Hartlib greatly laments that no public director of husbandry was established in England by authority, and that we had not adopted the Flemish custom of letting farms upon improvement.

The "Legacy" occupies 131 pages of small quarto, and treats sainfoin, lucerne, ploughs and carriages, digging, setting and hoeing, gardening, smut and mildew, orchards, fruits, vines, hemp and flax, dunging and manuring lands, the net improvement of our mead, waste lands, woods, bees, silkewormes, ignorance of the husbandry of other places, ignorance of things taken from the earth and waters of this island, the ignorance of the vegetation of this island, and their virtues and uses, animals, diseases of cattle and their cure, feeding and fatting of cattle, want of things necessary for improvements, want of God's blessing on our labours. Upwards of twenty pages are occupied by letters to the author on the various subjects that are treated in the work. The manures enumerated are—1. Chalke; 2. Lime; 3. Ordinary dung (excrements); 4. Marle; 5. Shaggrot (shelly earth from river beds); 6. Ouse, from marsh ditches; 7. Sea-weeds; 8. Sea sand; 9. Folding of sheep; 10. Ashes of any kind; 11. Soote; 12. Pigeon's and hen's dung; 13. Malt dust; 14. Salt and brine; 15. Grassy turf and brakes; 16. Fish; 17. Urine; 18. Woollen rags; 19. Denshyving, or paring and burning lands; 20. Mixture of lands; 21. Enclosures; 22. Steeping of graines; 23. Lupines, and ploughing green plants into the ground.

The "Reformed husbandman," or the notices of the errors and defects of English husbandry, fills 14 pages, and is bound with the "Legacy." This essay was imparted to Hartlib by some one of his correspondents, whose name is not given, but who recommends industry as the grand forge of inventions, and the source of all rewards; and

> "'Tis only need
> Gives life and scope to every human seed."

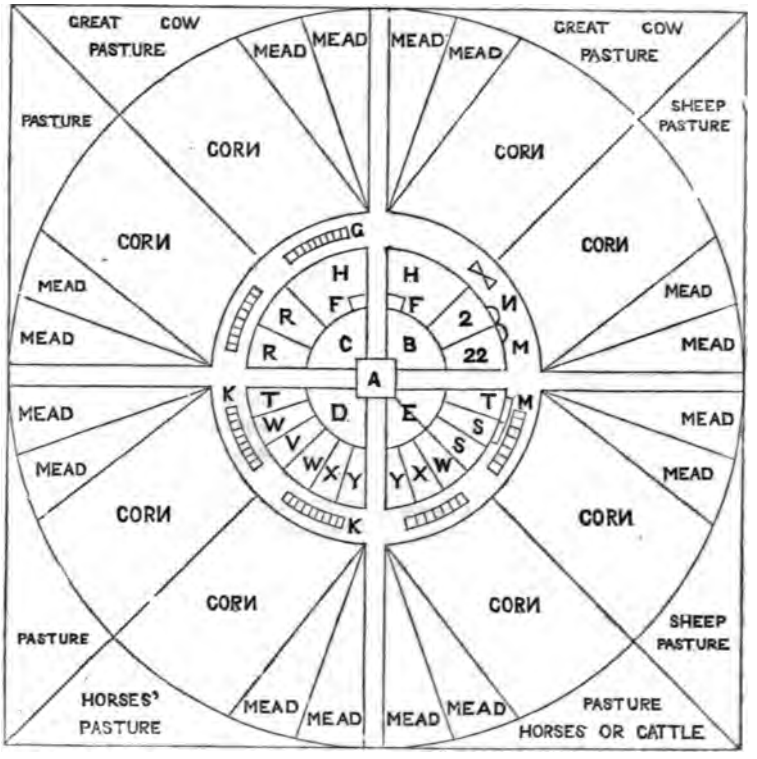
The author urges the fallowing of lands for any crops, and to use much less seed. He also recommends that much more expenditure be made in order to procure the jewels of nature.

In the "Essay on the advancement of husbandry learning" Hartlib ascribes all misery to the narrowness of our spirits, and that our hearts are not enlarged beyond ourselves. If the advantages that are offered were held, and made jointly serviceable, fruitful and luciferous employments would never be wanting, and are only unfruitful because we mind not the objects of that industriousness which, without a mutual concurrence, cannot be advanced. There are infinite means of relief and comfort for all sorts of calamities, to be found in nature and well ordered societies, if men were not enviously, or covetously, or peevishly, or ambitiously, or drowsily straitened within themselves. In order to rouse the upright in heart from the laziness and drowsiness, he states "that the mother of all other trades and scientifical industries, which is the science and trade of husbandry, would be very beneficially treated in the collegiate way of teaching the art thereof: for if the least part of industry is highly improved by collegiate institutions, the chief parts, which are the root of all wealth, must be advanced to perfection by that means."

ı order to promote what the author calls "the t ancient, most noble, and most necessary trade l others," he proposes that there be bought or ed a large and convenient house, with some l quantity of land adjoining and belonging to ınd that it be done "by those whose great th is joined with as great virtue and love to · country, and will as well as power to ad- :e the public good without seeking their own ıte benefit." He advises the money necessary ıe raised by contributions, according to the lom and means of the donors. To those, se good will may be large but the means are ll, he offers £20 yearly for every £100 that is and so for a greater or less sum proportion- ; and, on notice of six months, the sum dis- ed will be repaid. In order to ransom inge- y from her too tedious captivity, and to awaken stry from a kind of lethargy, young men of ears of age and upwards are to be bound for ars as apprentices in agriculture, and in that to be instructed faithfully in the theorick and tick parts of this (of all others) most ancient, e, and honestly gainfull art, trade, or mystery; and, at the end of that time, he shall receive at one entire payment, to set up withal, £200; and at the end of every year following that payment for the period of four years he shall receive £50 more, the better to support him, till he have taken sufficient root. The sum of £20 is paid by each student on entering. The number of pupils is limited to 36.

Freemen can be entered on paying £50, who must prove themselves to be well-wishers and professors of good husbandry. It is not the newness, but the rarity or invalidity of any invention, that lays it open to the dislike of the more wise and noble persons. The author does not pretend to make bread of stones, but only to make better bread of the same wheat, and to screw the most profound mystery of good husbandry a note or two higher, and to do the same thing a better way and to more advantage.

A correspondent of Hartlib, named Coressey Dymock, sent him the plan of a farm, which might be adopted on newly-enclosed land, as fens recovered from the sea, and river overflowings, and upon common grounds, being divided into farms. The design is subjoined:—



is chart is the plot of an entire lordship, or it serve for a farm of 200 or 300, or any number es—
s the dwelling-house in the centre.

B, the kitchen garden.
C, the orchard.
D, the choice garden.
E, the physicall garden.

F F, the dairy and laundry.
G G, sheep cotes.
H H, the closes for cows.
I I, the bakehouse and brewhouse.
K, the great corn barn.
L L, stables or houses, swine's styes.
M M, little houses, for poultry, &c.
N N, the standing racks.
O O, coney berries.
Q Q, closes for single animals.
R R, closes for mares and foal, &c.
S S, pastures for sheep.
T, closes for weak purposes.
V, pastures for fat beeves.
W, close for diseased beasts.
X, close for saddle-horse.
Y, close for weaning calves.

Another plan is given of a large square form, which is divided in the interior into a number of equal sized farms, that are also square in shape and very regularly placed. However eligible may be the square form of fields and farms, the adoption of the circle seems liable to many objections, in making very narrow corners, which are always inconvenient, even though the land be constantly in pasturage. It is a whimsical rather than a useful designation of land, and is given here as a mark of the ideas that prevailed in those times when agriculture began to be stirred in Britain, and from which the present improvements derived the propelling force.

Hartlib looked sublimely, and thought very deeply, as is shown by the projects which he formed and the recommendations he imparted. He was able to urge the adoption of arrangements that were beyond the interest of self, a circumstance the more wonderful as he was engaged in commercial agencies, which, of all other employments, rivets the mind most closely to the money column in the accounts of human transactions. His acquaintance with Milton, and estimation by that immortal man, and the correspondence with Sir William Petty, are sufficient to stamp the character of Hartlib as being a very superior person, and possessed of a mind that was moulded of refined materials. He was noticed by Cromwell, who presented him with an annuity of £100 yearly, which is otherwise said to have been given him from a direct application for relief, which was made on the grounds of his benevolent philanthropy. He was neglected at the Restoration, and his services were wholly forgotten—his pension was £700 in arrear; he presented a petition to the House of Commons, setting forth his services and praying relief, in which, among other things, he says, that "for thirty years and upwards he had exerted himself in procuring "rare collections of MSS. in all the parts of learning, which he had freely imported, transcribed, and printed, and sent to such as were most capable of making use of them; also, the best experiments in husbandry and manufactures, which, by printing, he hath published for the benefit of this age and posterity." In a letter to Lord Herbert he complains "he had nothing to keep him alive, with two relations more, a daughter and a nephew, who were attending his sickly condition." The result of these applications, and the time of the death of this ingenious man, are unknown—his history stops short at this point. It is recorded that Hartlib was a kind relieving friend to Gabriel Platten, and that he lodged and maintained Speed in his house whilst he composed his book of improvements in husbandry.

About the time when Hartlib flourished, seems to be an era when English husbandry rose to a high perfection, for the preceding wars had made the country gentry poor, and, in consequence thereof, industrious—though sometimes the reverse of this happens in many kingdoms; but these wise men found the cultivation of their own lands to be the very best posts of employment. Yet, in a few years, when the Restoration took place, all this industry and knowledge were turned into dissipation and heedlessness, and then husbandry passed almost entirely into the hands of farmers.

The notice of the life of Hartlib must not be closed without a parting expression of profound regret, that the lofty minds which are excited by the prospect of future good, and rise above the general allurement of immediate advantage, should ever be subjected to the painful necessity of making petition for relief, either by private or public solicitation. Such occurrences have not been unfrequent in the history of the world, and afford ample evidence that there is something wrong in the moral condition of society that permits the very highest benefactors of the human race to be degraded almost beneath the situation of menial servitude. A tithe of the tenth part of the money that was squandered under the restored monarchy of England, in upholding scenes of debauchery and maintaining the tools of a very depraved morality, would have supported in an easy and becoming competence the author of the "Legacy," and the propounder of an agricultural college, who was the esteemed friend of the immortal author of "Paradise Lost," and who held correspondence with the talented founder of the noble house of Lansdowne. These are painful reflections, and put to shame every boast of civilized life.

XXX.—Blythe, 1649.

Walter Blythe, or Blyth, was a Yeoman of Yorkshire, and acted in a military capacity in the army of Cromwell. Along with other commissioned persons of those times, he was very eminently

useful in introducing improvements into Scotland and Ireland. He wrote two agricultural works: I. "The English Improver; or, a new system of husbandry," in six chapters of 168 quarto pages; London, 1649. II. "The English improver improved," of 262 pages, containing the former work, with addition of six new pieces of improvement; London, 1652. The six chapters first published are—1. On floating and watering lands; 2. On draining fen and boggy lands, and regaining lands from the sea; 3. On such enclosures as prevent depopulation, and advance all interests; 4. On tillage of land kept too long in grass, and pasturing others destroyed with ploughing; 5. Discovery of all soils and composts, with their nature and use; 6. On doubling the growth of wood by new plantations. The second part contains six newer pieces of improvement—1. On the husbandry of clover and St. Foyne; 2. On lessening the charge and burthen of the plough, with divers figures thereof; 3. On planting wild wood and madder; 4. On planting hops, saffron, and liquorice; 5. On planting of rape, coleseed, hemp, and flax, and the profit thereof; 6. On the great advance of land by divers orchards and garden fruits. The work is dedicated to the Lord Protector, and to other public bodies.

The writings of Blyth contain a great deal of sound sense, and not badly expressed, on almost every branch of husbandry. His principles are very correct, and he seems to have entertained the first systematic conceptions of the benefits that would attend the alternate husbandry. He recommended the breaking up of all inferior grass lands, and shows the public loss from constant pasturage, and also the individual detriment. The wearing out of lands by too constant ploughing is much condemned, and the want stated of a renovating pasturage.

Blythe relates as a curious circumstance—"It is not many years since the famous city of London petitioned the parliament of England against two nuisances or offensive commodities which were likely to come into great use and esteem, and that was Newcastle coal in regard of the stench, and hops, as they would spoil the taste of the drink and endanger the people."

Blythe mentions the previous writers on agriculture, as Markham, Googe, Tusser, and Plattes. He knew Hartlib, but makes no particular notice of him. He says Plattes was very rationall and ingenious, and Tusser rimeth out of his experiences. No mention is made of turnips, though the plant was known before his time. He describes and figures the swing and wheel ploughs, and the double implement with two mould boards; and notices the turnwrest plough of Kent. The form and construction of the plough had much improved since the delineations had been given by Markham only twenty years previous, as is seen in the convexity of the mould-board and the greater length of the handles, which begin to assume the present curvature of junction with the body of the implement. These points constitute the most essential requirements of an efficient plough.

It has always been most truly stated, that the foundation of British agriculture was laid by Sir Richard Weston, Hartlib, and Blythe, by the notice and recommendation of the green fodder-plants, which, along with root crops, effected a most complete revolution in the cultivation of the British soil. The change of government introduced by the Commonwealth brought forward upon the stage of life many eminent characters, who, but for that change, would not have been heard of; and, whatever opinions may be formed of that form of government in other respects, no denial can be made to its being favourable in a very high degree to the development of genius and enterprize. For the long period of upwards of one hundred years from the time we write, little or no improvement was done in the practice of agriculture, till a similar social commotion moved the stagnation of the human mind, and put into motion the wheels of action that had stood still from want of impulse and the oil of progression. Green crops in the root and fodder plants budded in Hartlib and Blythe, blossomed in Tull, and were rich in fruit in Dawson, Culley, and Brown; and it was only from these enlightened practitioners that agriculture received the benefits of a sound practice and profitable results: so slow is the progress of truth even in the grandest form of attire.

Of the birth, native country, and lineage of Walter Blithe, his social existence, married or single life, issue, or death, no memorials exist, and it does not appear that any record had been made.

XXXI.—Lee, 1656.

Reverend Joseph Lee was a minister of the gospel, and seems to have been a dissenting clergyman in Leicestershire. He wrote "A vindication of a regulated enclosure," wherein is plainly proved that the enclosures of commons are both lawful and laudable. The essay occupies 36 octavo pages, and is forcibly written.

XXXII.—Sha, 1657.

J. Sha wrote "Certaine plaine and easie demonstrations of divers easie wayes and meanes for the improving of any manner of barren land, though the same be not worth 1s. an acre, and showing how to make the same become worth 20s., 30s., or 40s. an acre yearly." The essay occupies only 16

pages of small quarto, which relate to ploughing, dunging, and soaking lands with water.

XXXIII.—Evelyn, 1658.

John Evelyn was a great philosopher, a worthy patriot, and a learned writer in the seventeenth century. He was descended from a very ancient and honourable family, which flourished originally in the county of Salop, at a place still called Evelyn. George Evelyn, Esq., purchased the estate of the family at Wotton, in Surrey, in the reign of Queen Elizabeth, and left a large family. The youngest and only surviving son was the father of our notice, who was born October 31, 1620, in the paternal house at Wotton. His tender years were much indulged by his maternal grandmother at the Cliff, near Lewes, in the county of Sussex, where he received the first elements of learning at the grammar school in that town. In 1637 he removed to Baliol College, Oxford, where, as a gentleman commoner, he remained till the breaking out of the civil war, when he repaired to the king at Oxford, and obtained a leave, signed by his Majesty, to travel beyond seas for his improvement. His college tutor was a Mr. Bradshaw, related to the president at the trial of Charles I.; and he always mentioned the person as a "nomen invisum." Evelyn entered the Middle Temple in 1640, and at this time he lost his father, who died in his fifty-third year. The ominous appearance of public affairs, by the trial and death of the Earl of Strafford, inclined him to pass some time abroad, and he immediately visited Holland. In 1642 he offered his services to the royal cause, and was a volunteer in Prince Rupert's troop; but the movement of the army having left his property exposed to the rebels, he was advised to travel, in order to conciliate neutrality, and in 1643 passed through France into Italy. In the eternal city, the mother of arts as well as of arms, he indulged his thirst for knowledge, which was ever the ruling passion of his life; and his mind having been previously prepared, the stock he acquired was proportionally large. In France and Italy he left no curiosity unexplored, and at Paris was introduced to Sir Richard Brown, the English king's minister there, whose daughter he married in 1647, and had with her the possession of Sayes Court, near Deptford, in Kent; to which place he retired in October of that year. He published a tractate on liberty and servitude, for which being severely threatened, he again retired into France, and attended his father-in-law when, after the death of Charles I., he delivered his credentials to the French court as the minister of Charles II. He spent seven years in his travels, and returned to private life with a vast store of varied knowledge. His studious disposition at this time produced, in a letter to the Honourable Robert Boyle, the raising of a kind of a college for the reception of persons of a philosophic turn of mind, where they might enjoy the pleasures of agreeable society, and at the same time pass their days without care or interruption. As this idea will ever remain a grand conception of the human mind, the pages of our biography cannot be better occupied than in transcribing the proposition at full length. Evelyn's plan was thus formed:—"I propose the purchasing of thirty or forty acres of land in some healthy place not above twenty-five miles from London, of which a good part should be tall wood, and the rest upland pastures or downs, sweetly irrigated, and were there not already a house which might be converted, &c., we would erect upon the most convenient site of this, near the wood, our building, viz., one handsome pavilion, containing a refectory, library, withdrawing-room, and a closet. This is the first story, for we suppose the kitchen, larders, cellars, and offices to be contrived in the half-story under ground. In the second should be a fair lodging chamber, a pallet-room, gallery, and a closet, all which should be well and very nobly furnished, for any person that might desire to stay any time, and for the reputation of the college. The half story above for servants, wardrobes, and like conveniences. To the entry fore front of this court, and at the other back-front, a plot walled in of a competent square for the common seraglio, disposed into a garden, or it might be only carpet, kept curiously, and to serve for bowls, walking, or other recreations, &c., if the company please. Opposite to the house, towards the wood, should be erected a pretty chapel; and at equal distances, even within the flanking walls of the square, six apartments or cells, for the members of the society, and not contiguous to the pavilion, each whereof should contain a small bed-chamber, an outward room, a closet, and a private garden, somewhat after the manner of the Carthusians. There should likewise be an elaboratory, with a repository for varieties and things of nature, aviary, dovehouse, physic-garden, kitchen-garden, and a plantation of orchard fruit, &c.—all uniform buildings, but of single stories, or a little elevated. At a convenient distance, towards the olitory garden, should be a stable for two or three horses, and a lodging for a servant or two. Lastly, a garden-house and conservatory for tender plants. The estimate amounts thus:—the pavilion, £400; the chapel, £150; apartments, walls, and outhousing, £600; the purchase of a fee for thirty acres, at £15. £1,600 will be the utmost. Three of the cells or apartments—that is, one moiety with the appurtenances, shall be at the disposal of one of the founders; and the other half at the others. If I and my wife take up

two apartments (for we are to be decently asunder; however, I stipulate, and her inclination will greatly suit it, that shall be no impediment to the society, but a considerable advantage to the economic part); a third shall be for some worthy person; and to facilitate the rest I offer to furnish the whole pavilion completely to the value of £500 in goods and moveables, if need be, for seven years, till there shall be a public stock, &c. There shall be maintained at the public charge only a chaplain, well qualified; an ancient woman, to dress the meat, wash, and do all such offices; a man to buy provision, keep the garden, horses, &c.; a boy to assist him and serve within. At one meal a day, of two dishes only, unless some little extraordinary upon particular days or occasions (then never exceeding three) of plain and wholesome meat, a small refection at night, wine, beer, sugar, spice, bread, fish, fowl, candle, soap, oats, hay, fuel, &c., at £4 per week—£200 per annum; wages £15; keeping the gardens, £20; the chaplain, £20 per annum; laid up in the treasury, £145, to be employed for books, instruments, drugs, trials, &c. The total, £400 a year, comprehending the keep of two horses for the chariot, or the saddle, and two kine—so that £200 per annum will be the utmost that the founders shall be at to maintain the whole society, consisting of nine persons (the servants included), though there should no others join capable to alleviate the expence. But if any of those who desire to be of the society be so well qualified as to support their own particulars, and allow for their proportion, it will yet much diminish the charge—and of such there cannot want some at all times, as the apartments are empty. If either of the founders thinks expedient to alter his condition, or that any thing do 'humanitus contingere,' he may resign to another, or sell to his colleague, and dispose of it as he pleases, yet so as it still continue the institution. Orders.—At six in summer, prayers in the chapel: to study till half an hour after eleven: dinner in the refectory till one: retire till four; then called to conversation (if the weather invite) abroad, else in the refectory—this never omitted but in case of sickness: prayers at seven: to bed at nine. In the winter the same, with some abatements for the hours, because the nights are tedious, and the evenings' conversation more agreeable. This in the refectory. All play interdicted, *sans* bowls, chess, &c. Every one to cultivate his own garden. One month in spring a course in the elaboratory on vegetables, &c. In the winter a month on other experiments. Every man to have a key of the elaboratory, pavilion, library, repository, &c. Weekly fast. Communion once every fortnight, or month at least. No stranger easily admitted to visit any of the society, but upon certain days weekly, and that only after dinner. Any of the society may have his commons to his apartments if he will not meet in the refectory, so it be not above twice a week. Every Thursday shall be a music meeting at conversation hours. Every person of the society shall render some public account of his studies weekly, if thought fit, and especially shall be recommended the promotion of experimental knowledge, as the principal end of the institution. There shall be a decent habit and uniform used in the college. One month in the year may be spent in London, or any of the Universities, or in a perambulation for the public benefit, &c., with what other orders shall be thought convenient."

This scheme, which is characteristic of Mr. Evelyn's mind at the particular time of occurrence, would have probably departed from its principles, as it may be thought too romantic to have stood the collision of human passions and human events. During the civil war, and under the Protectorate, he lost no property; nor was his person ever molested, though his attachment and connection with monarchy was known, and also his correspondence with the exiled party. His conduct was delicately skilful; and by his upright conduct and philosophic conciliation he retained the esteem of the opposite parties. He was well received by the restored monarch, and had several public offices conferred upon him. He was a commissioner for the rebuilding of St. Paul's, and was appointed one of the first Fellows and Council of the Royal Society. He had great credit at court, and a high reputation in the world.

His leisure time was occupied at Sayes Court, in gardening and planting, which he ever reckoned to be truly rational and delightful occupations for the mind of man. His literary labours were continued with an unremitted zeal. On the death of his elder brother without issue, he succeeded to the paternal estate of Wotton, to which place he removed in the year 1700. He let Sayes Court to Admiral Benbow, and subsequently to Peter the Great of Russia, who came to Deptford to learn the art of ship-building. The house was furnished and rented by the King of England, who treated thus hospitably the semi-savage of the frozen regions. The Czar indulged the frolics of a savage wantonness in destroying the holly-hedges of the garden, which had been reared by the care of Evelyn: he had gaps cut through the hedges in all directions, in order that he might be wheeled in a barrow drawn by labourers, in all the emptiness of childish delight. The damages done to the property were made the subject of legal inquiry, and Evelyn obtained £150 in compensation. He was at Wotton during the great storm of 1703, when above one

thousand trees were blown down in sight of his house. His last visit was paid to the paternal seat in July, 1705; and the last memorandum made in his journal was of February 3, 1706.

During his latter days there was no relaxation of his endeavours to be useful. His collections were great, and he was ever ready to communicate them for the benefit of others. He furnished matter for several publications, and was an assiduous attendant of the Royal Society, and careful in his intelligence. His learned life and labours terminated on February 27, 1706, in the eighty-sixth year of his age. His body was interred at Wotton, beneath a white marble stone, with the inscription according to his own intention—"That all is vanity which is not honest; and that there is no solid wisdom but in real piety." He had of family five sons and three daughters: the former all died young, except the third, who wrote several works, and enjoyed a considerable reputation.

Evelyn's character has always been drawn in terms of a very just panegyric, from which no account of his life has ever attempted to retract. His personal character was truly amiable. As a father, a husband, and a friend, few persons ever equalled his constancy and affection: and his correspondence, which still exists in MS., affords many proofs of a kind heart, and a placid humble temper. He was greatly beloved by all who knew him, and his acquaintance was most extensive. Titles he never appears to have courted; and it is singular that Charles II., who was not niggardly in what cost him nothing, should not have tendered the rank of baronet to a man who was one of the ornaments of his reign. He never was cordial with James; and after the revolution he may have thought the addition of a title very insignificant at his time of life. He acquiesced in, rather than approved, the revolution of 1688: he did not condemn the objects which were sought to be attained, but thought the end might have been accomplished by other means. He was acquainted with many sciences, and wrote on many different subjects, yet was far from being a superficial writer. He had genius, taste, and learning; and knew how to give all these a proper place in his works, so as never to pass as a pedant, even with such as were least in love with literature, and to be justly esteemed a polite author by those who knew it best.

There is said to be a family genius in the home of a man of genius. Evelyn conversed chiefly with trees: his father delighted in the same pursuit: his grandfather was a great planter and preserver: and his own son followed the footsteps of his father. The surname Evelyn, originally Avelan or Evelin, was filbert, or rather, hazel, which occasioned the remark that these trees are commonly produced near dry stone quarries, among the excavated rubbish. Evelyn hated iron-works, as they destroy woods; and yet his family were induced by them to make very large plantations.

The exquisitely constructed mind of Evelyn looked at every object in the superlative degree and he fixed on gardening as a favourite point of attention. That performance is the cultivation of the earth in the highest excellence, and never fails to engage those minds that rise beyond the plodding in the mud of common routine. He published the first calendar of gardening under the name of "Kalendarium Hortense" in 1664, 8vo., to which is added his discourse on sallets. "The French Gardener," in duodecimo, had appeared in 1658, and in 1672 and 1675, and had added to it "The English Vineyard vindicated." The joint work passed through numerous editions. The "Kalendar of Gardening" occupies 175 duodecimo pages, and is divided into twelve months, with instructions what to do with fruits and flowers in those periods of time. The "Terra," or a philosophical discourse of earth, relating to the culture and improvement for vegetation, was published in 1676, and formed a discourse made before the Royal Society, and published by the order of the members. It occupies 182 pages of duodecimo, and describes the pulverization of land, the action of manures, and the effects of irrigation. Clay is called "a cursed step-dame to almost all vegetation, as having few or no meatus's for the percolation of alimental showers." Laxatives are to be applied, as sand, marle, chalk, and sawdust, and constant vexing with the spade and plow; but above all, with sea-sand, and the burning of the ground to ashes—for by no less severity will this ill-natured mould be subdued. All rotten substances are good. Loam is a succulent kind of "argilla," and an excellent mean between extremes of looseness and cohesiveness. Mostly all the manures yet known are well described, and the qualities ascertained. Much stress is laid upon the salts of the earth, which was a very favourite subject with the first philosophical inquirers. Evelyn approves the resting and exposure of land, in order to acquire a generous and masculine pregnancy; but doubts Sir Hugh Plat's contrition, or philosophical grinding of earth, by which it was prepared, to produce in our country the fruits of the Indies, as well as in the native countries. The attractions from the air are supposed to impregnate the soil with all the blessings that are required. The "Terra" of Evelyn has always maintained a just and well-merited reputation.

The "Sylva" fills 120 pages of folio size, and is joined in a volume with "Pomona," or an appendix concerning fruit-trees. The discourse of forest

trees is divided into descriptions of the several trees, qualities, and use; of the infirmities of trees, copses, and pruning of timber and fuel. The laws and statutes are mentioned which guard the preservation and improvement of woods, &c. This book was formed of lectures before the Royal Society, and proved of vast utility for the propagation of timber. It is thought to form the chief work of the author.

The "Pomona" occupies 20 pages, and treats wholly the fruit of the orchard, and the making of cyder.

The "Reflections on some parts of Agriculture" are merely physiological disquisitions on the functions of the various organs of plants, arranged in twenty-two chapters. The preparation and circulation of the sap engage much attention.

Evelyn entertained his mind with the study of sculpture, architecture, painting, and the coins and medals of ancient times. He wrote strongly in favour of active employments in preference to solitude—holding the opinion that individual services are to be used for the general good, and that no action must lie dormant. During the Dutch war he acted as a commissioner in charge of the prisoners and the wounded sailors—an office which he filled with much philanthropic feeling, and the most constant and tender attention to the fellow-creatures of his charge. The plague of London had much of his attentive zeal in the relief of suffering, and in suggestions for support. In his intercourse with royalty he never failed to tell kings what should be done, and in terms void of offence. He lived under revolutions, and might have profited by the changes; but when the spoils of his country lay at his feet, his lofty soul would not stoop to gather them. He amassed neither riches nor titles, but in the everlasting memory of his countrymen he secured the richest treasure, and by far the loftiest title which human grandeur has to bestow. The name of Evelyn will ever form one of the brightest characters that adorn the page of any biography of Britain.

Evelyn styled himself a pioneer in physical knowledge, imitating Sir Hugh Plat in choosing an appellation that denotes a low place of employment, in order to reach the higher positions by means of sapping and undermining the foundations. The learned Mr. Wotton says "that it may be esteemed a small character of his 'Sylva' to say it outdoes all that ancient authors have left us on the subject, and a great deal more, as it contains more useful precepts, hints, and discoveries, than all the world had ever known before." No English author had more benefited the arts of agriculture and gardening.

A short time before his death Evelyn revised the fourth edition of the "Sylva;" and in 1776 a new publication, with many notes and explanations, was edited by Dr. Hunter, of York, which has been twice printed, along with "Terra" and "Pomona." The name of the author will always attract notice.

It has been recorded by one narrator only that Evelyn left unpublished "A Treatise on the Dignity of Man." If true, the loss is great that man has not been dignified in writing by a person who, in his whole deportment, added a lustre to the image of his species. It may be doubted if the relic existed: his son must have known it; and in conjunction with other friends of the father, would no doubt have made proper use of it.

XXXIV.—Duckett, 1659.

Thomas Duckett wrote "Proceedings concerning the improvement of all manner of land, &c." This notice is printed in Weston's Catalogue of English Authors; but no mention of an author of that name is anywhere found beyond that list.

XXXV.—Stevenson, 1661.

M. Stevenson wrote "The Twelve Moneths; or, A pleasant and profitable discourse of every action, whether of labour or recreation, proper to each particular moneth; branched into directions relating to husbandry, as plowing, sowing, gardening, planting, transplanting, plashing of fences, felling of timber, ordering of cattle and bees, and of malt, &c.; as also of recreations, as hunting, hawking, fowling, coursing, cock-fighting. To which likewise is added a necessary advice touching physick, when it may, and when not to be taken. Lastly, every moneth is s:ut up with an epigram. With the fairs of every moneth."

This work occupies 59 pages of small quarto size, and is a curious book—almost beyond precedent. Each month of the year is prefaced with an engraving of an appropriate device, with the name of the month written in very large old English characters. The directions are given as promised in the title-pages. The fairs are mentioned, and an epigram closes the monthly labour. A specimen is here given in the epigram at the end of March:—

"Gallants, look to't! Cupid hath got his bow,
And strung't with wanton eyes to shoot at you;
And now the spring has filled your veins with blood,
Active and fresh, he's not to be withstood:
Beware, too, how your veins you overheat,
If not for fear of lusts, for fevers yet;
And give your vig'rous spirits an allay,
With cooling drinks, and clarifièd whey.
Ceres and Bacchus, wine and dainties—these
Are those that wound ye: Venus else would freeze!"

XXXVI.—Miles, 1662.

Abraham Miles wrote "The Countryman's Friend," London, 1662, duodecimo. This book is quoted in the "Bibliotheca Britannica," but had escaped both Mr. Weston and Mr. Loudon in making a list of authors. It is found in the British Museum, and occupies 30 pages of small duodecimo. The contents are the cures of diseases which afflict countrymen who have not the means of other applications. The remedies given are simple, and in every one's power—which is the author's intention. Two remedies are given for horses, and how to keep crows away from a cornfield. The application is sulphur and turpentine, smeared on feathers, which are stuck under the ears of corn.

XXXVII.—Ray, 1662.

John Ray, or Wray, was born at Black Notley, near Braintree, in Essex, on November 29, 1628. He was begun in education at Braintree School, and removed to Trinity College, Cambridge, where he was chosen Greek Lecturer, Mathematical Lecturer, and Humanity Reader, and acquired much reputation in languages, polite literature, and the sciences. His favourite study, and what constituted the chief business of his life, was the history of nature, and the works of God. In order to promote the study of botany, he published in 1660 the "Catalogue of the Cambridge Plants;" and the reception of the work encouraged his proceeding. In 1670 he published his "Catalogue of the English Plants." After various sojournings of abode, he retired to his native place of Black Notley, where he died in January, 1705, in the seventy-seventh year of his age. He published various works on natural history, in physiological botany, insects, and molluscous animals. His botanical works, or "Methodus Plantarum Nova," and "Historia Plantarum," led the way to the systematic construction of botany, and laid the foundation of British arrangements. The essays on sap, leaves, and roots, published separately, were very valuable. Ray published several theological works, and "Three Physico-Theological Discourses, concerning the Chaos, Deluge, and Dissolution of the World," 1692, 8vo. The author was ever noted for preaching solid and useful divinity, instead of the enthusiastic stuff which the sermons of that time were generally filled with. Natural history sobered his fancy.

Ray is always very deservedly included in the lists of authors who have benefited the general department of natural philosophy, of which agriculture is a part. His labours were most valuable in relation to plants and animals, which two branches form a large connection with the cultivation of the earth. An indirect bearing has often produced much greater results than an unscientific application, which wanted the soundness of base that must be derived from the preconceived theory. Ray did not prescribe any way or mode of better cultivation of the soil; but he illustrated the articles which are the fruits of culture, and thereby embellished the art in the most important parts of its constitution. His name is ever mentioned as a very eminent philosopher and natural historian.

XXXVIII.—Atwell, 1662.

George Atwell wrote "The Faithful Surveyor, discovering divers errors in land-measuring," Camb. folio, 1662. The book contains 143 pages of quarto size, and is bound in a volume of surveying, dated 1682. "Norden's Dialogue" is included. Attwell was a teacher of mathematics at Cambridge; recommends the measuring of land by the chain only, and introduces a new instrument, called a Pandorini, to supplant the plane-table, theodolite, and quadrant circumferentor, and any other observing instrument. The matter is very scientifically handled; and of all the writers on surveying of land up to this date, the author seems to have been the most complete master of the subject, and to have seen it most clearly.

XXXIX. Dugdale, 1662.

Sir William Dugdale, an eminent English antiquary and historian, was the only son of John Dugdale, of Shirtoke, near Coleshill, in Warwickshire, gent., and born there September 12, 1606. He received the usual grammar-school education at Coventry, and lived with his father, who initiated him into the study of antiquities. His position in society pushed him into the acquaintance of Hatton and Spelman, who procured for him an appointment and residence in the Herald's Office. He was very diligent in studying and copying the antiquities that came within his reach; and being removed to Oxford, a further opportunity was afforded him of pursuing his occupation. He compounded his estate with the victorious party against the king, and returned to London. He laboured most assiduously with Dodsworth in collecting and methodizing the materials of his great work, "Monasticon Anglicanum," which appeared in 1665, and the third volume in 1673. Many eminent men were engaged in this work, and great additions were subsequently made to it by Sir John Stephens, gent. "The antiquities of Warwickshire" was printed at the author's charge, and while it was being done, the materials were collected for "The History of St. Paul's Cathedral, in London," 1668, folio. Upon the Restoration, Dugdale was made Norrey King at Arms; and in

1662 he published "The history of imbanking and draining of divers fens and marshes both in foreign parts, and in this kingdom, and of the improvements thereby, extracted from records, manuscripts, and other authentic testimonies," adorned with sundry maps, &c. The author completed the second volume of "Sir Henry Spelman's Councils" by the instigation of Archbishop Sheldon and Lord Clarendon. He followed with several other works, as "Origines Judiciales," and "The baronage of England." "A short view of the late troubles in England," and his last work, "A perfect copy of all the summons of the nobility to the great councils and parliaments of this realm from the 49th of King Henry III. until these present times," 1685, folio. He was Garter Principal King at Arms, and received the honour of knighthood, much against his will on account of the smallness of his estate. Dugdale died in 1686, in the eighty-first year of his age, and was interred at Shirtoke, in a little vault of his own plan and erection. His posterity yet live in the county of Warwick.

The history of embanking and draining was written at the request of Lord Gorges, Sir John Manham, and others, who were adventurers in draining the great level in the counties of Cambridge, Huntingdon, Northampton, Norfolk, and Suffolk. Ten short chapters are devoted to the account of the ancient embankments and water channels, from the first records of the ancient Egyptians to the earliest notice of such performances in Britain, where maps are delineated in order to show the grounds and the channels that were directed. The Romney Marsh is first described and mapped, and said to be the work of the Romans, in the recovery from inundation by the sea. East Kent follows in the trench of Northbroke to Sandwich, and the marshes of Monketone and Menstre. Then come the marshes on the borders of the river Thames, from London to Greenwich, and to the mouth of the estuary. The low grounds in Surrey are then described, as about Bermondsey and Southwark. Then follow Middlesex and Essex, Shadwell and Stebenhethe; the marshes in the suburbs of London—in Bishopsgate, Finsbury, and Cripplegate. The low grounds around the mouth of the river Lea are then mentioned, and followed by the marshes in the county of Sussex, as at Pychandesbroke and Kechenbaune, and elsewhere. Somersetshire is next travelled into, and the marshes below Wells and Glastonbury are particularized. A map is given of Sedgemoor and the adjacent places. The low grounds are mentioned between Bristol and Gloucester, that lie along the banks of the Severne. From Gloucestershire the author jumps into Yorkshire, and finds the marshes near the rivers Ouse, Trent, and Humber. Holderness is reached, and the low grounds towards Hull and the sea-coast of the Humber, and between that river and Lambflete. Something is noticed in Derbyshire, near the rivers Derwent and Trent. Lincolnshire is then reached, which contains the great fennes, which fill the remaining part of the book. The part of the marshes in each county has a separate notice, and maps accompany each division of fens that is described. The whole volume fills 424 folio pages.

Dugdale does not advance any opinion of the works that had been done; nor does he state any better system that might have been, or could be yet adopted. He merely relates the institution of the proceedings, the appointment of commissions, the powers granted, and the results obtained. In these views, no more useful book had ever appeared.

XL.—Strangehopes, 1662.

Samuel Strangehopes wrote "Book of knowledge, in three parts—concerning astrology, physic, and husbandry," London, 1662, octavo. This notice occurs in the "Bibliotheca Britannica," but is not found in any other catalogue of books and authors. The loss may not be any way regretted, as the connection in the title does not betoken any intelligence on practical agriculture, but only some mention of it along with physic and astrology.

XLI.—Yarranton, 1663.

Andrew Yarranton, of Ashley, in the county of Worcester, gent., wrote "The great improvement of lands by clover," London, octavo, 1663; "England's improvement by sea and land—to outdo the Dutch without fighting—to pay debts without money—to set to work all the poor in England with the growth of our own lands—to prevent unnecessary suits in law, with the benefit of a voluntary register—directions where vast quantities of timber may be had for the building of ships, with the advantages of making the great rivers of England navigable—rules to prevent fires in London, and other great cities, with directions how the several companies of handicraftsmen in London may always have cheap bread," in two parts. London, 1677, quarto. Recommends the extension of agriculture.

The work on clover fills 46 pages of small duodecimo; and the contents are:—

1. The reason why some that have used clover have not found profit by it.
2. Clover doth not impoverish, but improves the land.
3. What are the fittest lands to sow clover upon?
4. The profit that is to be raised by this husbandry.

5. When, how much, and how to sow clover-seed.

6. Directions for mowing, making, and using the hay.

7. What cattle are fittest to graze it with.

8. The author's readiness to give any man further satisfaction, and to prove the truth of what he affirmeth by visible experiments.

9. Where the seed that is good and new may be had.

The author ascribes the failure in growing clovers to the very just cause of ignorance in the management, the unprepared state of the ground, and too little seed being sown. He avers that clover improves land by the corruption of superfluous parts of the plant, by the root cleaving the soil, and by the shade of the leaves beneath which the moisture is retained, and an incipient decomposition is encouraged, which mellows the surface of the ground, and provides food for future crops. These opinions have not been yet superseded. The author thinks dry gravelly lands are not agreeable to the clover plant, especially if it has been well limed before. He reckons six acres of clover, equal to thirty acres of natural grass in the maintenance of cattle. He urges the use of lime to encourage clover, and reckons £3 per acre to be the worth of clover to graze or mow. The month of March is recommended for the sowing of clover, that the plants may be rooted before the drought catch it, and the quantity in 12lbs. The author had sown clover without grain in April and August, and preferred the latter month. It is sown by hand, like corn. The hay is made as now-a-days, by turning the swathes gently, and not shaking out; and it is recommended to mix the ricks of damp clovers with barley and oaten straw, which will make good fodder. Clover lands, after being mown, are much benefited by being watered for the second crop, if the application be possible. Clover is good food for all grazing animals; cattle are cautiously put to eat it, in short spaces of time, for three following days. Horses are introduced to it without danger; and also swine at any time of the year. Geese and turkeys are also fed upon clover. Drilling and hoeing of the plant is mentioned, but not strenuously advocated. The author names the shops of seeds where the sound article can be got.

This little work is the most truly practical matter that had appeared in the agricultural world to the time when it was written. It is divested of all extrinsic and adventitious notices, with which the writers of those times swelled their works, and rendered them very perplexed and unintelligible. It contains more value in 46 pages than in many hundreds of contemporary publications.

"England's improvement by sea and land" forms a small quarto volume of 212 pages, of which the contents have been already mentioned in quoting the work. The improvements are done by general means, as digging canals, making rivers navigable, making roads, and the encouragement of fisheries by erecting fishing cities, to be free of all taxes, customs, and imports. Maps are given containing designs of the cities through which canals carry ships to any part of the towns. Illustrations are always given of the author's suggestions.

Of himself, he says, he was apprentice to a linen-draper when King Charles II. was born, and continued some years in the trade; but the shop being too narrow and short for his large mind, he took leave of his master, and said nothing. He lived a country life for some years, was a soldier in the late wars, and had the honour and misfortune to lodge and dislodge an army. In the year 1652 he entered upon some iron-works, and plied for several years. He surveyed and made navigable the three great rivers of England; studied the great weakness of lands that are constantly cropped, and found the reason of its defection by practick and theorick, and applied the remedy by putting out the book on improvements by clover, by which very much land has been doubled in value. He entreats every opposition to his projects to be sent him, when he will take care that a civil answer shall be returned; and among the heads put forth for discussion with the person who finds the fault is one—how to employ six thousand young lawyers and three thousand priests, for the good of the public and of mankind, who now have neither practice nor cure of souls. The writer only stated the point, but did not discuss it—a matter of regret, as to have read his disposal of what he thought a useless incubus on society, would be both curious and entertaining. He maintains that he presents his readers with facts, or what with much ease may be made facts, and entreats that no hastiness of judgment be allowed to condemn his proposals, till the subject be well weighed in all the points and bearing.

Nothing is known beyond the above notice of his own writing, of the lineage, social existence, and employed life of Andrew Yarranton, who seems to have been a person of very extensive views, and an enlarged comprehension.

XLII.—Forster, 1664.

John Forster, gent., wrote "England's happiness increased, or a sure remedy against all succeeding dear years, by a plantation of roots called potatoes." The book is dedicated to Charles II., and the author dates from Harslop, in Bucks. Directions

are given in 30 octavo pages how to make with potatoes, bread, paste, puddings, custards, cheesecakes, and cakes. Then follow the utilities of potatoes in six divisions, and an appendix touching the propagation of potatoes by seeds of the apple. The first utility goes to the king, who may derive a revenue of £50,000 yearly, by making plantations of potatoes. The second utility is the transportation of corn, which will be saved from home consumption by the use of potatoes. The third utility arises from the cheapness of corn by the use of potatoes. The fourth utility maintains the poor families cheaply. The fifth utility supports cheaply the poor of the parishes. The sixth and last utility is the general use of the root among all sorts of people. The author directs the berries of the potato to be gathered in October, set into the ground, and will that year yield roots, which are again planted in the usual way. Forster wrote very sensibly.

XLIII.—Dodson, 1665.

Colonel William Dodson wrote "The design for the perfect draining of the great level of the fens, called Bedford Level, as it was delivered to the honourable corporation for the draining of the said great level, 4th June, 1664." The book fills 40 pages of medium quarto, and a map is made to show the proposed channels to carry away the waters, and prevent the hurtful stagnation. The estimated cost is £28,000. It is not known what attention the author received of his design; or if he was ever employed in any execution of it: his name does not appear in any other place or occasion.

XLIV.—Worlidge, 1669.

Little is known of the history of John Worlidge or Woolridge, of Petersfield, Hampshire. He wrote several works on agriculture, gardening, and on bees, of which the chief are the "Systema Agriculturæ," the mystery of husbandry discerned and laid open, 1669, '77, '81, folio; 1687, 1716, 8vo. Treatise on husbandry, 1675, folio. The complete system of husbandry and gardening forms, an 8vo. volume of 504 pages, 278 folio, in 15 chapters as follows:—Of husbandry and improvements in general; of the great benefits and advantages of enclosing lands; of meadow and pasture lands; of arable lands and tillage; of manuring, dunging, and soiling of land; of the benefit in raising, planting, and propagating all sorts of timber trees; of fruit trees; of tillage of herbs in gardens, and roots, and fruits; of beasts, fowls, and insects; of injuries to the husbandman; of instruments, tools, and engines; of fowling, and fishing; Kalendarium Rusticum, or monthly directions to the farmer; prognosticks of the weather; dictionary of rustic terms.

This book contains much more useful and enlightened observations than any which had previously appeared. The author warmly recommended clover, lucerne, sainfoin, and ray grass, in the first notice of the plant, and seems to have been well acquainted with the irrigation of meadows, where his directions are very practical and sensible. He knew the value of chalk on sandy lands, and of ashes to sour pastures. He suggests the drilling of corn, and delineated a machine for the purpose, and also to deposit along with the seed any fine matters that will be manures, to promote vegetation. He differs from modern practice, in dropping the manure above the seed, in place of underneath the grains. The seed of grain crops is advised to be often changed from different aspects, and to steep corn in brines of nitre and salt and in urine, and prescribes a steep of sheep's dung, half bushel, saltpetre ½lb., common salt 1lb., boiled together for ten minutes in twenty quarts of water. He favoured the paring and burning of lands, and felt the value of earthy manures, and considered that calcareous sands are useful as litter for cow sheds and sheep cots.

The value of the excrements of fowls and pigeons is raised very high, and also of bones of every kind. Peat, sawdust and tanner's refuse, are to be mixed with dung-heaps—a practice not yet fully used. Woolridge says, "The well preparing of dung mixed is a piece of husbandry not to be slighted, on which point of good or ill-husbandry depends the rise or fall of the rents or values of many farms in this kingdom.

The writers of those days were farthest behind in the knowledge of animals. Points of quality or symmetry had not any existence among them, and when any mention happens to be made, the commendations are precisely what are now avoided. Large bones and lowness of paunch were objects of merit in those times, when beeving had obtained little notice, and random observations directed the practice of breeding animals. But at that time the advantages did not exist which favoured the modern breeders of cattle; green crops were unknown, and the demands of consumption had not begun to operate. The views of Worlidge on trees and plantations were much more enlightened, and he ridicules the objection of making orchards, that the fruit would be stolen; so land must not be improved nor any thing done, or the clergy would claim the tenth part of the produce. The nine parts must be wanted because the tenth would go away.

Of ploughs, the author mentions the double-wheeled, or Hertfordshire plough, the turn-wrest or

Kent plough, "which surpasseth for weight and clumsiness," the one-wheeled plough, the plain-plough, and the trenching-plough.

Worlidge took a scientific view of agriculture, and very correctly in the philosophy of its own art, and not in connection with any accessory science, with which the consorting of it may be difficult, if not wholly impossible. The philosophy he propounds is, no doubt, very exposed to many grave and serious blunders, which must be charged to the times, and not to the man who seems to have entertained ideas that were much in advance of his age. His mind was not cleared of the mystical universal spirit, or spirit of mercury and salt, which, with similar ideas, had infested the thoughts of every writer on physical subjects. But with all its faults, the book is undoubtedly a very wide step in the advancement of agriculture, and shows the rapid progress of reformations of every kind.

XLV.—Blagrave, 1669.

Weston has stated that Samuel Blagrave wrote the Epitome of Husbandry, in 12mo., London, 1669; and some others say it was written by Billingsby. No author of either name has got a book of that title attached to it in neither of the libraries of the British Museum, or in the Bibliotheca Britannica. The name is here entered on the sole authority of Weston.

XLVI.—Smith, 1670.

John Smith, Gent., wrote England's Improvements Revived by Husbandry and Trade, in six books; of several ways of improving all sorts of waste and barren grounds, with the seeds and plants that thrive best therein; the planting of timber trees and underwoods, and for gardens and orchard, the kitchen garden, and physic herbs. Also the new way of ordering cattle, sheep, cows, deer, conies, fowles, bees, pigeons, fish, and aviaries. Many remarks never before given. The work is dedicated to Lord Browker, the first President of the Royal Society, and the M.S. had been submitted to several members of the society for their opinion; among others to Evelyn, who sent the author the following letter in reply,—

"Mr. Smith,—I have perused your accurate treatise, entitled, England's Improvements Revived, and find it so industriously performed, and in so useful a method, that I cannot but cheerfully give my approbation. I have myself been engaged in the same argument, by command from the Royal Society, which has now been some time at the printer's, towards a second edition; and shall therein not fail to publish due encomiums of your work before it comes abroad. For though in some particulars we may happen to treat the same subject, yet it is without the least prejudice to each other, and I am glad to find my own conceptions fortified by a person of so great a talent and experience beyond me. Cedat ergo in bonum publicum.

"J. Evelyn."

"Saye's Court, 10 Feb., 1668."

The book was published by the expense of subscribers, and contains 270 pages of medium quarto. The matter is very miscellaneous, and most subjects are very passingly treated. Sheep and cattle have short notices; a cow must yield at least four gallons of milk every day, and have a fresh pasture every week. The author's attention was chiefly occupied with trees, as were most writers of these times. The work is hardly an agricultural book, but is always mentioned in the list of rural writers, and so is here included.

XLVII.—Reeve, 1670.

Gabriel Reeve of Hackney, wrote, "Directions left by a gentleman to his sons, for the improvement of barren and heathy lands in England and Wales." The author says he had practised husbandry for thirty years, and had improved much land; and then went into Brabant and Flanders, where he saw a new lesson to be learned. He mentions largely clover and turnips, and Devonshiring (paring and burning) of land, which was done for £1 an acre. Clay, loam, and marl, are recommended as manures, and to plough deeply, and to dung well. The author seems to have known fully the practice of agriculture as done in his time, and gives us the benefits of the clover and turnip cultivation. The essay forms part of a volume of agricultural tracts, some of which have the author's names, and others are anonymous.

XLVIII.—Pettus, 1671.

Weston has related that "Sir John Pettus" wrote "Saint Foine improved," in 4to, and in 1674. He mentions another work, "History, laws, and places, of the chief mines and mineral works in England, Wales, &c.," in folio. This last work, and others on different subjects, by Sir John Pettus, are found in the "Bibliotheca Britannica" and the library of the British Museum; but the first-mentioned work on Sainfoin is nowhere discovered. Pettus wrote much on mines and metallurgy; and also on politico-theology. He had been a person of some standing in society; though a doubt may be expressed if the work on sainfoin had been his production, as no other authority is found to corroborate the statement of Weston.

XLIX.—A Person Lately Deceased, 1674.

This assumed name as an author wrote "St.

Foine improved: a discourse showing the utility and benefit which England hath and may receive by the grasse called St. Foine; and answering to objections urged against it." London, 4to, 1674. This work occupies twenty pages of the small quarto size, explaining the great merits of the grass, the soils most favourable for its growth, and the cultivation which it requires. Modern experience could not at this day give any better directions in the use of sainfoin, which seems to have been as well known in those times as at the present day.

L.—J. B. Gent, 1675.

This name wrote "The epitome of the art of husbandry," comprising all necessary directions for the improvements of it, viz.: plowing, sowing, grafting, gardening, ordering of flowers, herbs; directions for the use of the angle; ordering of bees; together with the gentleman's heroick exercise; discoursing of horses, their nature and use, with their diseases and remedies; of oxen, cows, calves, sheep, hogs, with the manner of ordering them, their diseases, and remedies.

Of the nature of marle; the best way of planting clover grass, hops, saffron, liquorice, hemp, &c.

To which is annexed, by way of an appendix, a new method of planting fruit trees, and improving of an orchard, with directions for taking, ordering, teaching, and curing of singing-birds, and other useful additions. London, 12mo, 1675.

This work fills 136 pages of 12mo size, and is said to have been twice printed previous to this date, though no notice appears of the fact. The matter is arranged in short chapters or notices, and very confused, without any relation to precedence or connection. The author's ideas of animals are very fair, and show his experience to have been practical, and beyond an amateurship. Like to the books of the day, much irrelevant matter is coupled with every subject that is introduced. A considerable advance of time was required to rid this propensity.

The author says, a good horse hath several properties: two of a man, two of a badger, four of a lion, nine of an ox, nine of a hare, nine of a fox, nine of an ass, eight of a woman.

The two properties of a man are: a proud heart and to be bold and hardy.

The two of a badger are: a white ball on the forehead and a white foot.

The four properties of a lion are: a broad breast, stiff neck, wild countenance, and good legs.

The nine properties of an ox are: broad rib, short brawn, short pastern, great sinews, wide challes, great nose, big chine, fat and well fed, and of upright standing.

The nine properties from a hare are: stiff-eared, great eyes, round eyes, lean head, lean knees, light of foot, short buttocks, good fillets, and to turn upon light ground.

The nine properties from a fox are: prick-eared, little-eared, round-sided, side-tailed, short-legged, black-legged, short-trotting, well coloured, a little head.

The nine properties from an ass are: small-mouthed, long-veined, thin-crested, straight-backed, small stones, lath-legged, round-footed, hollow-footed, a rough foot.

The eight properties from a woman are: merry at meat, well faced, broad forehead, broad buttocks, busy with the tongue, chewing the bridle, good at a long journey, hard of ward.

If this description be not anatomically scientific, it is at least original, and most peculiarly appropriate.

LI.—Sherley, 1676.

Sherley is stated by Weston to have written "Curiosities of Scurry grass," with cuts, in 8vo. No book of that title can be found under the name of Sherley in the "Bibliotheca Britannica," or in the libraries of the British Museum. The name is here entered on the sole authority of Weston.

LII.—Langford, 1681.

"Systema agriculturæ," being the mystery of husbandry discovered—London, 1681, folio—is ascribed to "J. Langford" as the author by the "Bibliotheca Britannica." Weston writes him as the author of "On fruit trees," in 1696, but does not mention the agricultural work; and no library in the British Museum possesses it, but they have the work on trees. The name is here entered on the authority of the "Bibliotheca Britannica," which may have mistakingly attached to the name of Longford the exact title of Worlidge's production. Such inadvertencies have not unfrequently happened.

LIII.—Firmin, 1681.

Thomas Firmin was born at Ipswich, in Suffolk, in 1632; died in 1697. He was a noted person for public benefactions and charities, and published an essay of 24 quarto pages, entitled "Some proposals for the employing of the poor, and for the prevention of begging—a practice so dishonourable to the nation and to the Christian religion." London, 1678, 1681. The author had built a house in Aldersgate-street, where the poor people received flax and spun it, when they got the wages of employment; and he recommended that work be afforded to the people in their own homes, which is ever to be preferred to large congregations in public workhouses. He allows public receptacles

where to curb and employ vagrants and sturdy beggars who have no habitation, and who would not preserve one in cleanliness were it provided them till the necessary habits be taught and confirmed. He advises schools for poor children, to be taught to work and to earn their own living. He thinks it quite practicable that work be found for all capable persons, and that there is no occasion for any person to be scant of bread. The author's views were sufficiently benevolent, but not very enlarged.

LIV.—Houghton, 1681.

John Houghton, F.R.S., published "A collection of letters for the improvement of husbandry and trade," London, 1681, 4to. "Collections for the improvement of husbandry relating to corn; a catalogue of all sorts of earths; the art of draining, of brewing; the instruments of husbandry." Revised by Bradley, 1727-28, 4 vols., 8vo. The first work only is found in the British Museum, and is a volume of 360 quarto pages, in two divisions, which are bound together. The letters relate to various subjects, and were written by eminent persons, Evelyn and Worlidge included. The author writes the preface from St Bartholomew-lane, behind the Royal Exchange, and gives a catalogue of the books relating to agriculture in the library of the Royal Society. None of the practical works are mentioned which we have noticed in our biography. The author excuses his miscellaneous assemblage of matter, and likes a libertine way of handling subjects before the severest rules.

The letters are enquiries concerning agriculture; advantages from enclosures; great advantages from the clover grass; cure of neat's tongues in London; great gain made from cole seed; some considerations about trade.

The matter and use of money; great gain from French furzes; an account of Thomas Firmin's book: "Proposals for employing the poor;" remedies against the loss of crops, smuts, mildews, lodgings of corn, and its being eaten up by birds; plantations of foreign colonies do not depopulate, but rather increase or improve our people; new way of curing smuttiness in corn; some account of the plague; Spain not prejudiced by its plantations; prodigality, or men spending their estates doth not prejudice the nation; about improving land by marle; high living enriches the nation, instead of prejudicing it.

The history of malting; a description of the malt kiln; concerning several matters that relate to the argument. A defence of the prohibition of Irish cattle, in two long letters, with a cure of woodcocks into an excellent dish; proposals concerning the linen manufactory; an account of making bread, and of a great improvement of land by parsley; on lives, East India Company, and bankers; account of exports and imports in 1682; account of improving and fining of cyder; a statement of a new way of ploughing; an experiment on salt; an essay on wood as fuel; a relation of the culture, planting, and ordering of saffron; account of great improvement of mossy land, by burning and liming it; enquiries concerning husbandry and trade; it is for the interest of the people that kings be plentifully supplied; the culture of safflower; how to rear cattle, fatten calves and lambs; the manner of making bricks; how to make colonies of bees; manufactures thrive best when provisions are dear, as plenty encourages business.

Houghton makes the first notice of the potato plant as an agricultural vegetable, and calls it "a bacciferous herb, with esculent roots, bearing winged leaves and belled flowers." The field cultivation of the plant began about the time when Houghton wrote, or from 1680 to 1690.

These letters, collected and published by Houghton, have always enjoyed a very considerable reputation, and it would seem very deservedly. The author had been an educated person, and had enjoyed the correspondence of the *virtuosos* of his time. His ideas of improving trade would not now find an admittance.

LV.—Lambert, 1683.

James Lambert wrote "The countryman's treasure, showing the nature, cause, and cure of all diseases of cattle," London, 1676-83, 8vo. This treatise occupies 52 pages of 24mo, and has on the front page the portraits of an ox, sheep, and pig, being the veriest caricatures that can be imagined of these animals. Weston quotes "John Lambert."

"The countryman's treasure; or, a treatise of oxen, sheep, hogs, and dogs," in 12mo. It is hard to say if the persons had been the same, or were different authors on separate subjects. The work now quoted is a veterinary production rather than agricultural; but "Lambert" is generally written as an agricultural author, and the uncertainty remains if the writer had been a farrier or a farmer.

LVI.—Godfridus, 1688.

This name is attached to a book of 124 pages of 24mo, entitled "The knowledge of things unknown, showing the effects of the planets and other constellations; together with the husbandman's practice and the shepherd's prognostication." The appellation may be an assumed title,

as no initial letters have ever been affixed to it, and is written "Compiled by Godfridus, supra palladium de agricultura Anglicarum." The heading of the chapters is in common type, and the contents are in the old English characters. The prognostications of the weather from astrological observations do not now attract any notice, and this book does not contain any practical matter.

LVII.—Moore, 1695.

Sir Jonas Moore, Knight, F.R.S., was a very respectable mathematician, and Surveyor General of His Majesty's Ordnance; born in Lancashire in 1617, died in 1679. He wrote several mathematical works, and "History or narrative of the great level of the fens, called Bedford Level," with a large map of the said level, as drained, surveyed, and described, 1685, 8vo.; also, "England's interest, or the gentleman's and farmer's friend," London, 1706, 12mo. This last work contains 188 pages of duodecimo, and treats "How land may be improved from 20s. to £8, and so to £100 per acre yearly, with great ease, and for an inconsiderable charge. The best and quickest way of making a nursery. How to make cider and fruit wines, and brew malt liquors of all kinds. Of the great benefit from the husbandry of bees. Instructions for fish-ponds, and for angling and catching all kinds of fish. Physics for families in every distemper."

The author discusses the first proposition in nine pages, and arrives at his conclusion by means of apples and fruits converted into wines and cyder. His pen met no obstruction on the paper; but the fruits are exposed to many influences.

The "History of the great level" occupies 67 pages of 24mo, and relates the proceedings of draining and the allotment of the recovered lands. The map does not appear with the book, and the work seems unworthy the author's reputation.

LVIII.—Bellers, 1696.

John Bellers wrote "Proposals for raising a college of industry for all useful trades, and of husbandry," London, 1696, 4to; and "General essays concerning the poor." The first work fills 28 pages of 4to size, and is dedicated to the Lord Chief Justice Hale, that great composition of learning and virtue, and the contents are: Reasons for providing for the poor; the way shown of doing it in a college fellowship; proposals to the college founders; advantages to the founders, and rich by it; some advantages to the poor collegians; some rules about governing the college workmen; of the education of children; an answer to several objections; a postscript.

The author was induced by the cries and miseries of some, and idleness and lewdness of others, of the poor, to suggest some proposals for relief, which were presented to the Lords and Commons assembled in Parliament. Three things are proposed: first, profit for the rich (which will be life to the rest); secondly, a plentiful living to the poor without difficulty; thirdly, a good education for youth that may tend to prepare their souls into the nature of the good ground. Labour, not money, is to be the standard of every value, all cheats and robberies being done by means of money, or the great mammon of unrighteousness. Three hundred persons are in one college, and at £10 for each person's labour, the income will be £3,000 yearly. The sum of £10,000 is allowed to buy an estate of land, £2,000 to stock it, £3,000 to prepare the necessaries of work, £3,000 for a new building, or repairing an old one—in all £18,000. The stock to be valued every year, and the profits divided. No subscription less than £25. Every £50 or £100 to have a vote; and no person to have more than five votes. Twelve proprietors to form an inspecting committee. The governors, or under officers, to have no salary, but only a maintenance in the college. No corporeal corrections, but abatements of food—a dismissal the last resort—and the house of correction must be distant. Other regulations are subjoined, which show a very sound undertaking.

The author answers objections as to the difficulty of performance, that all great doings would never have been acted on the same ground of difficulty, and concludes that, to remove all objections that may be urged against such purposes, would be to empty the sea.

The author refuses the name of workhouse as bespeaking too much of servitude, and bridewell implies punishment, which should not exist upon earth; and the term community understands more unity of spirit than ever may be found among the human race. A college implies a general utility without any compulsion or servitude of any kind.

The author of this essay does not stand alone in thinking that the Government of every country has the power and the means of making an adequate provision for the whole population, and that a bounden duty exists that it be done. The ideas of men had made a most rapid progress in Britain from the reformation in religion, and the commencement of the civil commotions to the times in which we write—bigotry had fled, and liberality succeeded in its place.

LIX.—Mather, 1696.

William Mather was a surveyor of highways in Bedford, and wrote "Of repairing and mending the highways," in five sections, touching: I. Re-

moving obstructions in the highways and scouring the ditches next adjoining. II. Draining the highways. III. Providing material. IV. Providing labourers. V. Providing carriages. Published for the use and instruction of young surveyors. The essay occupies 32 duodecimo pages, and relates chiefly to the duties of surveyors, and less to the practical formation of roads. It is bound in a volume along with other short dissertations on various subjects.

LX.—Meager, 1697.

Leonard Meager wrote two works on gardening, and "Mystery of husbandry," London, 1697, 12mo. Nothing is known of his life, or social existence. The work on husbandry contains 161 pages of duodecimo, in 61 chapters, of improved arable, pasture, and woodland. This book being reckoned among the best agricultural works, the contents are subjoined at length:

Introduction. Of the excellency, necessity, and usefulness of the advancement of good husbandry.

Chapter.

1. How to know the goodness of land.
2. Of the dunging of ground.
3. The nature, use, and benefit of marle.
4. Of ploughing, the parts of the plough, and best season for ploughing.
5. Of liming, sanding, and hacking land, to make it fruitful.
6. Of the first and second ploughing and of harrowing.
7. Of weeding and destroying the weeds, with directions to order the corn in sowing, &c.
8. To dress and manure barren ground overrun with gorse, broom, furze, weeds, &c., relating to ground dry and wet.
9. To improve barren clay, simple or compound, overrun with whinney, with the particular ordering of it.
10. To dress and manure all barren clays, simple or compound, incumbered or overgrown with heath or ling.
11. Of dressing, ordering, tilling, and manuring barren sandy ground, producing only short mossy grass.
12. Of ordering and dressing barren sand, overrun with fern, heath, brakes, and the nature of the soil, &c.
13. Of ordering and enriching barren lands subject to wild briars, twitches, and bushes, &c.
14. Of ordering, tilling, and enriching barren lands encumbered with moors, or moorish long grass.

Chapter.

15. A way in general to enrich any poor sand clay for grain with less trouble and c than before.
16. To reduce grounds to fertility that h been spoiled by salt-water, or overflo ings of sea-beaches.
17. Good pasture and meadow to be made barren soil of any of sort or earth, sim or mixed.
18. Several useful engines described for watering of meadows, pasture, &c.
19. Further rules and directions for wateri meadow and pasture for the improvi and fertilizing of it.
20. The proper way effectually to drain l and reduce it to fertility, either arable pasture.
21. To drain fenny and marshy land with least charge, and most effectually, &c.
22. Tools and instruments proper and useful the working part, and order of drain land, &c.
23. The best way to improve drained fen lan to great advantage, &c.
24. Discovery of abuses in ploughing, and h to order them.
25. A description of the most necessary sorts ploughs used for tillage in England.
26. A computation of work to be done by o man in one day in the sundry occu tions relating to husbandry.
27. The variation of soil in the several counti requires different measures to be taken agriculture, &c.
28. What is required in husbandry in order oxen and horses, for tilling of lands va ously situate, &c.
29. Proper things to be observed and do throughout the twelve months in t year.
30. Utensils and tools necessary for the hu bandman for arable land, the barn, stab meadows, and pastures, &c.
31. To preserve your grain when sown from sorts of vermin, who are apt to destroy annoy it.
32. To prevent smuttiness in corn, preserve against blasts, the injury of black frost snow water, mists, and how it is to ordered when reaped wet.
33. Proper directions for the stacking of cor to keep it from vermin, fowl, taking w or musting.
34. To know washed corn, and how to lay and keep to the best advantage useful sorts of grain in granaries, &c.

Chapter.

35. The best way to plant and order vines to a great increase and improvement of land.
36. How to order hop-vines, gather and dry hops, after the best manner, &c.
37. Flax and hemp good improvers of land. How to manure the ground for them, and sow and order them.
38. To order hemp and flax, when ripe, to the best advantage.
39. How to plant and order saffron for the improvement of land, &c.
40. Clover, or clover grass: how in the best manner to order the seed, sow, and increase it, for the improvement of land.
41. St. Foin, or French grass: directions for sowing, ordering, and improving it on land.
42. Improvement of land by sowing and well ordering of turnips.
43. Improvement of land by sowing of carrots, and how to well order them, &c.
44. Improvement of land by sowing of parsneps, and the well ordering them.
45. Improvement of land by sowing weld, or weald, and how to order it.
46. Improvement of land by sowing of woad, and how to order it.
47. Improvement of land by sowing madder, and how to order it.
48. Woodland and inclosures improved, and the great advantages made thereby.
49. Of oak, elm, and beech: how to order and improve them for the best advantage.
50. Of ash, walnut, and chestnut trees, &c.: their improvement and well ordering.
51. Of the maple, horn-beam, quick-beam, hazle, box, juniper, holly, and fir trees: how to order and improve them.
52. Of trees delighting in wet ground, as the poplar, aspen tree, alder, willow, &c.: their ordering, and the best way to improve them.
53. Further improvements for ordering sundry sorts of trees for the valuable improvement of land.
54. How to order trees for their better growing, and more speedily turning to good advantage.
55. Sundry trees not yet mentioned: their growth and well ordering for the improvement of land.
56. Of trees fitting for timber and other uses; the sundry sorts, their goodness, and to what uses properly to be attributed—very necessary to be known.

Chapter.

57. A true recipe how to make the best bird-lime.
58. Wonderful improvement of land by planting trees, and by enclosures, showing the advantage of it over the lands that lie in common.
59. Of enclosures and trees planted in hedge-rows, both fruit and others, and the benefit thereby arising to the owners of such lands.
60. Reasons for enclosure and wooding of land, both for the public and private advantage, and the objections made against these answered and confuted in many convincing particulars.
61. How to take the stag, buck, hare, fox, badger, wild goat, and otter, which destroy corn, underwoods, &c.

"The Countryman's Almanack."

Meager mentions four kinds of ploughs: the single-wheeled plough, the double-wheeled plough, the plain plough, or without wheels; the double plough, or having two furrow mould boards; and the plain Dutch plough. The second plough is the turn-wrest of Kent. The portraits of the implements are the exact delineations given by Blythe in his book of "English improver improved," which fact, with the same descriptions given by Meager, show that no improvement had taken place in respect of ploughs during the half century that elapsed betwixt the dates of the publication.

Two sorts of turnips are mentioned: the round, or bulbous, and the long parsnep turnip. The leaves are recommended to be rotted on the ground for manure, and the roots to be given to cattle and swine. Nothing is said about the preparation of the land, nor of thinning the plants and killing the weeds. Meager thinks flax and hemp improve the land, being directly contrary to the modern opinion of these plants. He knew the commonly used manures, and gives the usual directions of application. Marle was a universal favourite with the writers of these times.

The Countryman's Almanack is merely relating to the weather from observed signs.. The conclusion is,—

North winds send hail, South winds rain,
East winds we bewail, West winds blow amain.
North-east is cold, South-east too warm,
North-west too bold, South-west doth no harm.

Though no notice is made of animals, Meager's book must be reckoned a very considerable advance in the progress of agriculture. The matter is bet-

ter arranged than by the previous authors, and the subjects are sooner related, and more quickly dismissed. The title-page is still loaded with the contents of the work, and the prefaces are lengthy, and the dedications clumsy. Still a large progress had been made.

LXI.—Floyd, 1697.

Edward Floyd wrote, "An account of locusts in Wales;" "On the spontaneous combustion of several hay stacks, &c." These essays were printed in the "Philosophical Transactions" of the period above mentioned, and hardly entitled the author to a place in an agricultural biography, as the matter was not formed into a book. But as other lists have inserted the name, our record follows the example.

LXII.—Donaldson, 1697.

James Donaldson, a native of Scotland, and one of the earliest and most useful writers on the agriculture of that country, wrote "Husbandry Anatomised," London, 1697, 12mo. The libraries of the British Museum do not possess this work, and nothing is known of the author except what is written above. Scotch writers place a high estimation upon the book, as a valuable production of that early time, and reckon it fully equal to any thing of the kind that had appeared at the date of its publication. Not having seen the book, our notice does not add or detract.

LXIII.—Nourse, 1700.

Timothy Nourse, Gent, wrote "Campania Felix," or discourses on the benefits and improvements of husbandry, containing directions for all manner of tillage, pasturage, and plantations; as, also, for the making of cyder and perry, with some considerations upon justices of the peace and inferior officers; on inns and ale-houses; on servants and labourers; on the poor. To which are added two essays—1 "Of a country house," 2 Of the fuel of London." The first edition of the book appeared in 1700, and the second edition in 1707. This writer uses no dedication, preface, nor introduction of any kind; the contents follow the title-page, and the matter begins on the next leaf. The first chapter, "On country affairs in general," shows the author to have been an educated and well informed person, and much superior to the common calibre of writers on agriculture. "What I have written on this subject" he says, "is not grounded on the reports and method of other authors, but upon my own observations, towards which I have had some small advantage by my long continuance in a private and country life." He reduces husbandry into three general heads—tillage, pasturage, and plantation; and recommends that land be fallowed every third or fourth year. Dung requires digestion or maturation, by reason of the seed which lie in the litter. One load and a half of pigeons' dung is sufficient for an acre of land; four loads of sheep's dung, eight loads of horse dung, and ten or twelve of cow dung. It is not known what bulk or weight of load is meant. Fresh dung is better for stercoration than an old putrid mass, as the saline or sulphureous parts of the dung are wasted, in which its vegetative power doth chiefly consist. Lime kills the weeds, corrects the coldness of the soil, and cherishes the grain. Four loads to an acre is a good dressing. It supersedes the use of marl. Burning of land is an excellent good practice, and the benefit to the land arises from the increased temperature. Wheat is steeped in urine or salt brine, and then floured with powdered lime. Snow preserves corn by the covering it affords, and newly broken up ground is to be sown with oats. The head lands of arable fields are to be left in grass, and grain is recommended to be thrashed and sold immediately.

Pasture grounds are improved by being sown with grass seeds, as clovers and sainfoin, which are very highly commended. Ray grass is a spiry benty sort of grass, and thrives on a variety of soils, but not so much in vogue as sainfoin. Top dressings are much advocated in all fine substances, especially malt dust where it can be got. The watering of land is well understood and directed. The extirpation of tall weeds, and spreading of mole and ant hills are duly noticed. The author recommends that all low ale-houses be abolished, and that magistrates exercise a vigilant care over the licensing of these resorts. The chapter on the poor does not suggest any scheme for their relief, but is merely observations on the means of avoiding poverty.

The essay of a country house describes at some length the form of accommodation of a country residence, and the pity is that the author had not favoured the succeeding generations with a portrait of this scheme, so that it could have been now delineated. On the subject of fuel the author recommends wood and charcoal, in order to prevent the smoke from coals.

Nourse's book occupies 354 octavo pages, and is the best publication of the kind that had appeared at its date. Nothing is known of the author beyond the attachment of his name to the work. He had doubtless been a country gentleman of some small landed property.

LXIV.—Smith, 1704.

Smith wrote the Husbandman's Magazine, in 12mo. No list of writers except Weston's notices this author, so that his catalogue is the sole authority for inserting it.

LXV.—Fleetwood, 1707.

William Fleetwood was born in London 1656, died in 1723; he was much admired as a popular preacher, and was successively Bishop of St. Asaph and Ely. Weston ascribes to him a book entitled "Curiosities of nature and art in husbandry and gardening, in 8vo., 1707." The Bibliotheca Britannica does not mention this work, but quotes the other book of Fleetwood's mentioned by Weston, "Chronicon Pretiosum," or an account of English money &c. The libraries of the British Museum do not possess the works, so that Weston's catalogue again constitutes our authority for the name.

LXVI.—Young, 1707.

Arthur Young wrote "Curiosities of art in husbandry and gardening," London, 1707. This is the same title and year of the work which Weston has given to Bishop Fleetwood, and some mistake lies between that list and the Bibliotheca Britannica, which quotes the work as now given. Arthur Young, an author in 1707, is nowhere noticed, except in the last-mentioned classification of writers. The well-known secretary of the Board of Agriculture, who bore that name, did not appear in the world for more than half a century behind this date of time.

LXVII.—Mortimer, 1707

John Mortimer, Esq., F.R.S., wrote "The whole art of husbandry, or the way of improving and managing of land; with the countryman's calendar, or what he is to do every month of the year." The book is dedicated to the Royal Society, and forms a thick octavo of 632 pages. The books are 15 in number, and each is divided into chapters on connected subjects. The first book has four chapters—on inclosing lands; of pastures, and meadow lands, how to improve them, and defend by banks from floods and tides; and of making hay; and of several sorts of grass seeds, as clover, sainfoin, and lucern,—ray grass, trefoil, and several other grasses. The second book has 6 chapters—of arable land and tillage; on ploughs, of which some are figured; and the square earth board is shown and recommended for stiff clays; the Hertfordshire wheel-plough is still much recommended; of ploughing and laying land in ridges; of sowing corn and steeping it. The third book has three chapters, describing the different natures of soils; the ability and power of production. The fourth book has seventeen chapters—

I. On the manuring and digging of lands, with observations on each sort of manure.
II. Of the burning of land.
III. Of chalk.
IV. Of lime.
V. Of marl.
VI. Of fuller's-earth.
VII. Of clay.
VIII. Of sand.
IX. Of earth.
X. Of sea-sand and weed.
XI. Of dungs.
XII. Of sheep's dung.
XIII. Of hog's dung.
XIV. Of urine.
XV. Of human ordure.
XVI. Of the dung of fowls.
XVII. Of several other sorts of manures, as ashes, soap ashes, soot, rags, malt dust, and the several soils each sort of manure is best for.

The fifth book has 25 chapters, on grains and pulse crops, the roots, and herbaceous plants. The sixth book, of 21 chapters, treats on the animals, fowls, and insects that stock the farm. The seventh book, of three chapters, describes the pests of the farm, in four-footed and feathered beasts. The eighth book has five chapters on the uses of corn, and the making of malt. The four chapters of the ninth book treat on the small tools of work. The tenth book has four chapters on buildings and repairs. Book eleven treats on the different trees in 21 chapters. The twelfth book, in 12 chapters, describes coppice woods. The thirteenth book has two chapters on the plants of the kitchen garden. The fourteenth book has 21 chapters on fruit trees. The fifteenth book has five chapters on English liquors, as ale, cyder, and fruit wines.

Lime is used at the rate of 160 bushels to an acre, and laid in cinders in a bushel to a pole square, covered with earth, and spread when dissolved—but better in being carried hot on the land. It makes corn grow with a thin bark, and does not last above five years. Forty bushels of soot were sown by hand on an acre, and produced a mighty sweet grass. The spade is figured for paring land to be burned, and is the same now used. Turnips are sown in broad cast on finely fallowed lands, in midsummer, and afford food for sheep, cows, and fatting cattle into the month of March. The crop is a great help to dry barren lands, and will grow on almost any ground—the fly and caterpillar often destroy them. The crop is thinned by twice hoeing, at an expense of 4s. to 9s. an acre, or in daily wages of fourteen-pence. Stubble turnips were sown at this time of the cultivation of the plant.

The author says a bull should have a sharp quick countenance, forehead broad and curled, eyes black and large, horns long, neck fleshy, belly

long and large, hair smooth like velvet, breast big, back straight and flat, buttocks square, thighs round, legs straight, joints short. The cow ought to have a broad forehead, black eyes, clean great horns, neck long and thin, large deep belly, thick thighs, round legs, short joints; white, large, deep udder, having four teats, and the feet large. Of sheep, he says, the ram must have a large, long body, forehead broad, round, and well rising, eyes cheerful and large, nostrils short and straight. The ewe must have the neck large and upright, bending like a horse's, back broad, buttocks round, tail thick, legs small and short, clean, and nimble, wool thick and deep, covering all the body; gums must be red, teeth white and even, brisket skinned, eye-strings ruddy, felt loose, wool fast, breath sweet, the feet not hot. Fat pastures are said to produce straight tall sheep, and hills and short pastures breed square ones; woods and mountains yield small and slender sheep. The observations are very judicious on the breeding and management of sheep, and differ little from the modern practice. It appears that many sheep were then rotted.

The "Farmer's Calendar," in directions of monthly work, would do credit to any modern publication.

The author thinks but few farms will afford the generally allowed increase of three rents; one for the landlord, one for charges, and the third for the tenant. A farm of 100 acres, let at £1 per acre, may be maintained for the charge of £100 yearly; but if let for £50 a year the charges will be more than double the rent; or there must be the quantity of 200 acres of land in the farm.

Mortimer's book forms a very large advancement in the progress of agriculture from the preceding authors on the subject; trees and fruits do still occupy too much room, but the animals are more largely introduced, and systematically treated. The work was much approved, was translated into the Swedish language, and published at Stockholm in 1727.

It appears that Mortimer was a merchant in Tower-hill London, in 1693, and became possessed of Toppings Hall, an estate of land in Essex which he very much improved. Some fine cedar trees yet grow there of his planting. He was author of some tracts on religious education.

LXVIII.—Snow, 1715.

T. Snow wrote the "Apopiroscopy, or a complete and faithful history of experiments and observations in several arts, sciences, and professions." The "terricultural" experiments and observations are on the sowing of seeds; on the dunging, manuring, and soiling of land, and of the nature of soil proper for several vegetables. The observations are wholly taken from preceding authors, and are contained in short sentences of recommendation. The book is very miscellaneous, as the name imports, and can scarcely be claimed as a work on any special subject. The date is 1702, though the author's name is always given in lists of writers in 1715.

LXIX.—Clarke, 1715.

George Clarke wrote "The landed man's assistant," in 12mo. No author, or book of this name and title, is any where found but in "Weston's Catalogue," so that his list of writers constitutes the authority for entering the name in our record.

LXX.—Jacob, 1717.

Giles Jacob, Gent., was born at Romsey, in the county of Southampton, in 1686; died in 1744. His father was a maltster; and, after serving the apprenticeship of the law, our author became steward and secretary to the Hon. W. Blathwayt, a celebrated courtier in the reign of William I., and who enjoyed much preference in that and the succeeding reign. He was a poetical and dramatic writer, and a most industrious law compiler. He wrote some works relating to country matters, and "The country gentleman's vade mecum," containing the improvements of lands, ploughing, and sowing of corn; reaping, mowing, hedging, ditching, and all sorts of husbandry; of horses, cattle, cures of diseases, and directions how to buy and sell cattle, and breed horses; of deers and parks: fish, fishing, fish ponds, and game; prices of timber, and all sorts of building and workmanship, and the art of measurements; rules for the management of a family, expense in eating and drinking; duty and places of servants; general account of gardening, and of natural philosophy, in several chapters; to which is added a general description of England, and especially of London; taxes, revenue, policy, great officers, and courts of judicature; and legal observations on the several chapters throughout the whole, and a poem in praise of a country life.

The work forms a volume of 129 pages in small duodecimo, and shows the writer to have been a person of very considerable learning. Unlike to Meager, Nourse, and Mortimer, the author had never practised nor lived among farming in any shape or form; but his active mind had made large excursions, and among other objects agriculture had attracted notice. He seized the prominent parts which formed the improvements of the day, and placed them in the brighter view which arose from his education. Lands are improved by soiling, draining, watering, and grub-

bing. The first mode comprehends manuring, and grubbing means trenching by the plough or spade. Clover and ray grass are very much recommended, as being extraordinary things for enriching lands, especially by feeding them with sheep.

The wages of those times are given with much accuracy, and also the produce of crops. Reaping of wheat is 3s. to 4s. an acre; mowing of barley 1s. per acre; raking barley 1s. per acre; mowing and raking of oats is the same price; as also of grass. Daily reapers got 1s. 6d. per day for wheat and mowing barley, for men; for cocking 1s. per day. Women got 6d. to 8d. per day for raking and cocking barley, oats, and grass. Thrashing of wheat 4d. per bushel; barley and oats 2d. per bushel. The straw usually defrays the expence of thrashing. An acre of good wheat produced about 30 bushels; barley and oats 20 to 40, according to the quality of the land. Eight or ten sheaves of wheat afford one bushel of corn. All expense relating to corn, from the ploughing of the land to the marketable rate, is worth 15s. to 20s. an acre; and the expense of hay-making is worth about 3s. or 4s. per load or acre. Corn sold on the ground was worth: wheat in £2 10s. to £3 an acre; barley £1 10s. to £2; oats about £1. High pasture lands must never be mown, as it impoverishes the ground; but low meadows are refined in the herbage by the mowing of the grass. On the breeding of horses the author advises a strong similarity in the parents, and that they are well shaped, especially the mare, which the foal most resembles. Mares may breed from the age of 3 to 10 years. Young horses are not to be handled or broken to use till the age of four years, when the muscular frame will be strong and well knit, the hoofs tough, and the eye-sight good. Horses are hurt by too young endurance of harness and riding. The marks of a good cow are, full chest, thick on the ribs, hair lying smooth and shining, handsome, and round shaped; and a sheep being round, having a large tail, and full cod, are good signs. Cattle kept from Lady-day to Michaelmas should leave of profit 30s. a piece, which makes good interest of money, answers well—living, and to pay rent. If sold at Midsummer 20s. of profit is good pay. An ox weighed about 900 lbs., a cow about 500 lbs., wether sheep about 22 lbs. per quarter, and a ewe about 18 lbs. About ten fleeces of wool went to a weight, or 21 lbs., and sheep were washed for 2s. per score. Horses ran at grass for 1s. 6d. to 2s. 6d. per week; oxen and cows 6d. to 1s. according to size; wintering of cows 2s. per week, and summering 1s. per week; sheep 2s. 6d. or 3s. a score per week, and on a common 1s. per head in a year. Running of a colt 1s. per week. Yeomath, or grass produced after the hay is cut, is worth for the winter half-year one quarter of the yearly value of ground, which, if 20s. an acre, the yeomath will be worth 5s. or 6s.

The other subjects of the author's notice are treated in a similar manner, and on gardening and fruit trees the discussions are longer and more practical. The monthly directions are accompanied with what clothes are required to suit the weather, and what food to use. The yearly maintenance of an individual of a family is calculated at about £40.

No book of the same bulk ever contained the useful matter in the quantity of this little volume, which has never been noticed, and is carefully written by Weston as being an author, and no more is said of it. Agriculture has ever needed, and yet feels the want of educated men being employed in its practice, and it has derived most of its valuable advancements from persons of alien professions. Even when no originality comes from the labours of education on that point, the existing practice is adorned and rendered attractive. The poem is here added, which was written by the author in praise of a country life.

A country life, the rural seat I choose,
Where nature freely doth her charms diffuse;
A neat small house, near to a shady grove,
Where pleasant birds sing out harmonious love.
A river fine, not large nor deep, but clear,
With murmuring streams divert the greedy ear;
An estate not large, competency good,
To relieve keen nature with a wholesome food.
A garden small, with curious plants adorned,
In pleasing shapes by skilful gardeners form'd;
Here nature variously her beauty shows,
The fragrant lily and the blooming rose.
The lofty trees put out their verdant shoots,
And by winter's cold the long impaired roots
In spring, with strength and beauteous lustre rise,
Present a resurrection to the eyes,
And every field seems like a paradise.
Until the scorching sun with heat exhales
The nutritious moisture of the fertile vales,
And mother earth its vigorous strength hath lost,
Its prolific nature with female weakness crost.
Impotent's the fire, when water fails to serve,
It helps destroy, not vital life preserve;
And weak is the water, when the fire's no more,
It barren makes what fertile was before.
But when the elements in consort meet,
The earth is blessed with a product great.
So when the sun its radiant beams displays,
And every field enjoys its happy rays,
Refreshing showers the scorching earth relieves,
The dry vegetable new life receives.
The ground is pleasant in most distant views,
Throws off its russet, brightest green renews.
Then walking is a pleasant exercise,
It moves the thoughtful, and diverts the wise;
It health increases, and doth strength create,
Restores the patient to his pristine state.

The morning's lustre, and the sun's approach,
With exercise, recover a debauch;
But when this sun absconds, this glorious light
Removeth from us, then approacheth night.
" Hyems " succeeds with rough and austere face,
But health affords unto all human race
Now rural sports in great variety,
So in the country there's no satiety.
Sometimes for hunt, sometimes for shoot and course,
Sometimes for fish, and all without remorse:
On beautiful banks, over a plenteous brook,
You drop successfully your baited hook;
O'er hills and vales you do your game pursue,
Still pleas'd with motion and with prospects new;
Till hunger keen takes off the edge of sport,
Then home to dinner with eager haste resort.
Eat plentifully the plain provided food,
With a stomach sharp and digestion good.
Dinner being o'er, your garden you survey,
View well the product, business of the day,
Let nought be uninspected that may prove,
Nature's ornament, generous passions move.
When night approaches with its dismal face,
With pleasure you your studies may embrace:
Sometimes a friend and bottle will be good,
And in this way right living's understood.
To this a pleasing female you may add,
Adorn'd with sense, and with strict virtue clad,
With her you spend your hours unemploy'd,
As the gallant with a mistress till enjoy'd;
With joy reflect upon the marriage knot,
And lovely children in honest wedlock got;
To all other women you a stranger prove,
Let thy dear consort be thy only love;
By this good way of living you'll be free
From stinging vice and all perplexity.
With health and strength spin out the thread of life,
Free from envy and the destructive strife;
From noise, confusion, of the filthy town,
The country air in healing draught suck down;
Not coop'd by debauchery or youthful vice,
With aged locks advance to paradise.
This is the truly happy earthly state,
Ought to be valued at the highest rate;
Free from the care attending miser's wealth,
Adds peace and comfort to a vigorous health.
From greatness likewise free the courtiers' fate,
His pride, anxiety, unstable state;
In courts of princes this maxim is understood,
It's dangerous for a statesman to be good.

LXXI.—Switzer, 1718.

Stephen Switzer was a gardener and seedman of Hampshire, in the reigns of Anne and George I. He wrote some books on gardening, and had extended his views beyond the walls of the garden, and looked at the policy and pleasure grounds, plantations, and at agriculture. On the latter subject he wrote "The country gentleman's companion, or ancient husbandry restored, and modern husbandry improved;" and "An account of the lucerne, sainfoin, clover, and other grass seed, with a method of turning clay for the dressing of land." This treatise had passed through three editions; but the two works now mentioned are not found in the British Museum; but the chief work of the author is found: "Iconographia rustica," or the nobleman's, gentleman's, and gardener's recreation, containing directions for the general distribution of a country seat into rural and extensive gardens, parks, paddocks, &c., and a general system of agriculture, illustrated with a great variety of copper plates, done by the best hands, from the author's drawings.

This work is in three octavo volumes, of a thin size, in about 260 pages each. A long preface fills 15 pages, and the contents follow of each volume separately. A history is given of gardening from the earliest notice down to the time of the author, and is succeeded by an essay concerning earth, water, sun, and air, and the process of nature in vegetation. The raising of forest trees is treated, and of the timbers in parks and policies. The water-works are described that must be formed in pleasure grounds, with the grasses and gravel walks. Figures and delineations are given of the landscape gardening, plots and designs of various kinds, for the use of gardeners, with the application of instruments for the special purpose. Orchards and fruit gardens are largely treated, and woods and groves described and figured.

The agricultural part of the work occupies the second part of the third volume, and is contained in six chapters. The sections mention the subject matter, as the management and improvement of arable land by the plough, spade, &c.; of winter fallowing; of earths, and their improvements; of the nature of dungs, sheep, and hogs, poultry; of marle, chalk, and lime, used before sowing; the superficial dressings are, coal-ashes, wood-ashes, kiln-ashes, saw-dust, turf-ashes, lime, malt-dust, sea-sand, loame, loamy sand, burnt vegetables, soap and pot ashes, soot, rags, pigeon's dung, sea shells, burn-bating, burning of meadows and pasture ground by heath and fern, claying, and by enclosures; of ploughs and ploughing; of sowing; of draining of lands; the conclusion is on hop-yards and the management.

Switzer has ever been highly esteemed by gardeners of the higher degree; and it must be added that the portion of his work on agriculture shows a very correct information, a quick sense, and a sound judgment. With the exception of some few crotchets, which enlightened practice has removed, modern farming finds nothing to reject in the writings of Switzer. The old doctrine about nitrous salts still lingered, but did not exist in much vigour since the days of Plat. It yielded to the gradual progress of scientific knowledge. Switzer died in 1745.

LXXII.—Bradley, 1721.

Richard Bradley, F.R.S., was professor of botany in the University of Cambridge, and a most voluminous writer on agriculture and botany. Died in 1732. Of his numerous works, the following ones relate to our purpose:—"Philosophical treatise of husbandry and gardening," London, 1721, 4to. "Treatise concerning the fallowing of ground, raising of grass seeds, and the training of lint and hemp," London, 1724, 4to. "General treatise of husbandry and gardening," London, 1726, 2 vols., 8vo. "Riches of a hop garden explained," London, 1729, 8vo. "A complete body of husbandry," London, 1729, 8vo. "Experimental husbandman and gardener," London, 1729, folio. "Proposals for the improvement of waste lands," London, 1730, 8vo. "British housewife and gardener's companion," 8vo, 2 vols., 1730.

The works of Bradley have never been properly distinguished—no two lists of authors agree either in the number or date of his publications. Additions were made from time to time, and there never has been a complete edition of them all. The above list has been selected as appearing to contain the chief works on our special subject.

The libraries of the British Museum contain only two of Bradley's agricultural works: "The complete body of husbandry," and "Gentleman and farmer's guide in regard to cattle." The first book is an octavo, of 372 pages, in 18 chapters, which treat of soils, water, air, and heat—their influence on vegetables; of manures; of manuring barren lands; of the making of potash; of composts, or mixt manures; of draining and watering of lands; of the improvements of bushy and mossy ground; of bushy ground never before arable; of improving furze, or gorse, or whin ground; of improving broom ground, and the use of broom; of the improvement of heath ground, and fern or brake ground; of the improvement of flinty or dry chalky ground, and of limestone land; of improving soils by means of the natural plants; of the improvement of ground by the shifting of crops; of the improvement of lands by enclosures, the repairing of highways, and the preservation of game; the method of stocking a farm of 300 acres of arable land; expense of stocking a grass farm, both of grazing and meadow ground; of horses, which is the concluding chapter.

The author quotes very largely from Fitzherbert, and mentions Hartlib, Houghton, and Mortimer. The subjects are most sensibly handled, and show a very well informed and comprehensive mind. The stocking of a farm of 300 acres of arable land costs £415, including £100 for household furniture. The profits of a ewe in the year is 5s., and of a hog 20s., and the poultry on such a farm will yield £40. The yearly expenses are £586 8s. 6d., including the rent of £150. The profits are £800, leaving £214 for clear profit yearly.

Bradley has introduced more methodical arrangement than the preceding writers on agriculture; but much still remained to be done on that point, one of the most important in all the records of writing.

The book on cattle and other animals is an octavo of 352 pages, in four chapters: On sheep; on swine, and their improvement; on the bull, cow, and ox; on horses. The sheep has the preference of being first treated, on account of the great value from the wool, flesh, tallow, and skin. The rot is much discussed—the causes and prevention. The falling, yeaning, and castrating of lambs, are fully described; and the severing the sheep and parting the flocks. The washing and shearing are well described, with a long quotation from Fitzherbert. The management of wool, and the application of it, occupy twelve pages. The distempers of sheep are accompanied with the cures, which concludes the first chapter.

The second chapter, on swine, reckons the creature kept with little trouble, and profitable in every part of it. It is the chief support of the kitchen, and the kitchen is the chief support of the swine. The farmer is very improvident who buys bacon, or seeks pork of the butcher; for there is to them who understand the management of swine a greater advantage than can accrue to those who keep the larger sort of cattle, either in breeding swine for pork or bacon. The edible parts of the hog afford more variety of tastes than either sheep, oxen, or twenty other creatures besides. After this eulogium on swine, the author describes the different kinds then living in England, preferring the black breed for sweetness of flesh, fecundity, and quick fattening. The cross between that breed and the large white hog is much recommended, as needing little care and yielding most profit. The author recommends an animal of the middling size: and, notwithstanding the old and very common opinion to the contrary, he thinks the pig is cleanly in its habits, and advises the comfortable accommodation. Not more than two broods of pigs must come from a sow within the year, as many farrowings will very injuriously weaken the animal. The very ample feeding of the sow with juicy food is strongly urged during the suckling period, in order both to support the sow and to rear a strong and healthy progeny. Barley-meal is much recommended, with wash, whey, and grains, and all juicy matters in a liquid form. Pigs are to be early learned to drink mixed wheys and other liquids. The sow may breed till six years

old, and then fattened. Good directions are given in the feeding of hogs for pork and bacon, for curing bacon and hams. The distempers of swine are then specified, and the remedies given.

The third chapter, on the bull, cow, and ox, begins with a view of what relates to kine from the ancient writers of husbandry. England has ever possessed some of the best breeds of kine, which are modified in the districts being barren or fertile in the soil. The counties of Lincoln and Somerset are mentioned as producing large beasts, generally of a red colour, or cross-stain, between them and the black. There were white cattle in Surrey, which yielded the richest milk, and then their flesh more readily received the salt. The best oxen had the following properties:—Large, well-knit, and sound limbs; a long, large, and deep-sided body; white-horned, broad-foreheaded, great-eyed, and black; ears rough and hairy; jaws large and wide; lips blackish, neck well brawned and thick; dewlap large, and hanging down from the neck to the knees; shoulders broad; hide not hard, nor stubborn to the feeling; belly deep; legs well set, full of sinews, and straight, rather short than long, the better to sustain the weight of the body; knees straight, and great feet, one far from another, not broad nor turning in, but easily spreading; hair of all the body thick and short; tail long, and big haired. Cattle bred on the ground are to be preferred to strangers. Milking cows are to be high of stature, long-bodied, having great udders, broad forehead, fair horns, and smooth, and almost all other tokens that are required in the bull; cows may breed till twelve years old. The first calf to be dropped at the age of three years, and come best in the month of March. Bradley recommended that all calves suck the dam. The vealing process is well described, and the calf pens have a vacant floor underneath. The diseases of calves are treated, and the cures prescribed. The manufacture of milk into cheese and butter is detailed at length, and a section is devoted to the breaking of oxen to the yoke or draught; a second to the structure of ox stalls; a third to the feeding of oxen; a fourth to the use of the parts of the body of kine; and another on the distempers of kine, and the cures.

The fourth chapter, on horses, treats the breeding and training of the animal in the various breeds which were then known and used. The cross between the Barb and the English mare is particularly related. The best horses are got from foreign stallions and English mares; black colour is hardy and enduring; white is delicate; chesnut and brown bay are strong and spirited; and the grey which tends to black is stronger than the white greys. The origin of the pie-bald colour is much discussed, but left unresolved. A fine-formed animal may not possess the requisite spirit nor strength. The bright bay colour, with black mane and tail, the bright bay, and the dapple gray, are the best colours, the most pleasing, and the most lasting. The breaking of young horses is accompanied with drawings of the bridles and saddles necessary for that purpose. This part of the work seems to be unduly lengthened, and is followed by a section on the distempers of horses and the cures, which concludes the work.

The work of Bradley is the first systematic production on the animals of the farm, and exclusively devoted to the special object. It possesses much merit, and is as well arranged and expressed as any modern work on the subject. Poultry might have been added, which would have completed the farmer's store of beasts that are reared for his advantage.

The industry and talents of Bradley were not mean, and, though unadorned by deep learning, they procured him a very reputable degree of respect with posterity, though it is said he was deficient in the upright integrity and propriety of conduct which, beyond any endowments of nature, stamp the character of a man. Be this as it may, he led the world both in agriculture and botany. His "Dictionarium botanicum" was the first attempt of the kind in England, and exotic botany was indebted to him for an undertaking which he did not live to execute. This was "Historia plantarum succulentarum," of which only five parts were published. His "New improvement of planting and gardening" went through several editions, as did his "Gentleman's and gardener's calendar." The same may be said of his "General treatise of husbandry and gardening;" and his "Philosophical account of the works of nature" was a popular, instructive, and entertaining work, and continued in repute several years. It seems Bradley had forwarded qualifications and urged pretensions which he was unable to vindicate and fulfil, and it was proposed to dismiss him from his professorship, when he died in November, 1732. A regret is due that any slur or blemish should attach to a name that dignified and forwarded a science and an art which have no superiors in enlightening the mind and improving the condition of the human race. The offence of Bradley was neither immoral nor criminal, and a just charity may decide that the good effected very much overbalances any delinquency that was incurred.

LXXIII.—Molesworth, 1723.

Weston writes, in his catalogue of authors, that Lord Molesworth was the author of "Some considerations for the promoting of agriculture and

employing the poor," Dublin, in 4to. Robert Viscount Molesworth, of Swordes, in Ireland, was an eminent statesman and polite writer, zealously espoused the revolution of 1688, and was sent by King William as ambassador to the court of Denmark, of which country he wrote "An account." He gave great offence in this work, and the fault lay on the side of the writer by universal opinion. It seems he was unlucky in his expressions, as he was more than once removed from the privy council of Anne and George I.; but he was much noticed: was a commissioner of trade and plantations, fellow of the Royal Society, and continued to serve his country with zeal and industry till the two last years of his life, which he spent in studious and learned retirement. He was Baron of Philipstown, and Viscount Molesworth, of Swordes, and died in 1725, at his seat at Breedenstown, in the county of Dublin. Few men of his fortune and quality were more learned or more highly esteemed by men of learning. He was intimate with Shaftsbury, and corresponded with Locke, and treated by all with the highest regard.

The libraries of the British Museum do not contain the book now mentioned; but it is written among Lord Molesworth's works in the accounts of his life and publications. A regret is due to the want of it on the subject of the poor, as that consideration still forms the grand puzzle of every social policy, and the enigma which defies solution. Probably the learned and benevolent mind of Molesworth may have suggested some remedy which, like all other applications for the public good, does not demand such a vast extent of natural parts, as an exertion of honesty, that is much beyond what the world has yet been blessed with enjoying or beholding.

LXXIV.—Knowles, 1724.

Weston states that George Knowles wrote a "Treatise on the manner of fallowing ground, raising of grass seed, and training lint and hemp," in 12mo. No other list of authors, nor any library of books, contains this work, though the other work is mentioned that is ascribed by Weston to George Knowles, "Materia medica botanica, poema." The insertion of the name in our biography rests on the sole authority of Weston.

LXXV.—Lawrence, 1726.

John Lawrence, M.A., was rector of Bishops Wearmouth, in the county of Durham, in 1721, and prebendary of Salisbury in 1723. He died at his rectory in 1732. His early attention to gardening produced several works on that subject, as "The clergyman's recreation," "The gentleman's recreation," "The fruit-gardener's calendar," "Paradise regained," a poem on gardening. He published in 1726 "The new system of agriculture," being a complete body of husbandry and gardening in all the parts of them. The volume is a large folio, in five books, of which only the first relates to agriculture. It describes meadows and tillage lands, ploughs and ploughing, sowing of grains, manures, the plants used in the various kinds; animals of all sorts, and the productions from them: minerals are added, and the working of the materials. The conclusion of the whole work treats the hindrances to improvements by reason of beasts and weeds. Elemental matters are largely discussed, which was a favourite topic with the olden writers, and not discarded in Laurence's day. This author did not add anything new to agriculture, but seems to have been well acquainted with the best practice of his time.

LXXVI.—Lawrence, 1727.

Edward Lawrence, land surveyor, was brother to the last-mentioned author, and wrote "Young surveyor's guide," London, 1726, 12mo. "The duty of a steward to his lord, with an appendix on farming," London, 1727, 4to. This volume contains 212 quarto pages, and a long introduction enumerates the evils and loss from improper stewardships. The duties of a competent steward are detailed in 36 articles, most of which are used in the best modern practice. He prohibits the keeping of rabbits, and much game of any kind, and forbids any grounds to be pared and burned. The ability and substance of a tenant should be well known before a farm is let to him, otherwise great inconvenience may follow, and loss to both parties. The sub-letting of lands is forbidden, and farms are to be augmented in size gradually as the terms of holding are expired. The work shows an enlightened knowledge of the subject, and contributes a large advancement in agriculture. The forms of cash and rental books are valuable even at this day.

A long appendix of 20 articles gives as many directions to the farmer on points of interest to the practice of his business. Clover and trefoil are much recommended, and lime in being rolled into the ground. Turnips are a great improver of land —must be hoed and well cleaned. The list of manures does not add any new substance, and the application to the soil is done as with the previous writers. The artificial grasses are clover, rye grass, sainfoin, lucerne, vetches, lentils, tares, and buck-wheat. Twelve pounds of clover sows an acre, 13 bushels of ray grass, 4 bushels of sainfoin, and 14 lbs. of lucerne. Vetches, in both the winter and summer variety, are great improvers of the ground.

The practical knowledge of this author was very correct and enlightened on every point, and he must be reckoned a very prominent character in the progress of agriculture. The hoeing of turnips, and the consuming on the ground by sheep, are well described and recommended. The regret is that he had not written more. The condensed mode of writing marks a new era in the agricultural world.

Weston writes Lawrence as being the author of the "Gentleman farmer," and "Proposals for draining Bedford level." These works are not found in any other list in attachment to the name of Lawrence; and, as Weston does not make any mention of Edward Lawrence, some mistake may have placed the work to a wrong name.

LXXVII.—Dove, 1728.

John Dove wrote "Strictures on agriculture, wherein a discovery of the physical causes of vegetation, of the food of plants, and the rudiments of tillage is attempted." He wrote in the "Philosophical Transactions" of a surprising shoal of pumice stones found floating on the sea, 1728, vol. viii., p. 234. This small volume occupies only 80 duodecimo pages, and is exclusively a philosophical essay on improving land, dearness of provisions, rights of property, and foolishness of governors who have only one eye, and blink with that. The author does not state any practical knowledge, and is little noticed.

LXXVIII.—Rye, 1730.

George Rye wrote "Observations on agriculture," Dublin, 1730, 8vo. This statement is written in the list of authors by Weston and Loudon, and in the "Bibliotheca Britannica;" but the book is not found in the libraries of the British Museum.

LXXIX.—Mackintosh, 1730.

Brigadier Mackintosh wrote "Essay on ways and means for enclosing, fallowing, planting, &c., Scotland, and that for sixteen years at farthest," Edin., 8vo., 1730. This book fills 295 pages of small octavo, and contains besides, the "Essay on enclosing the nation, the laws for encouraging planting and policy, anent the manufacturing of linen cloth, and anent repairing highways." This essay argues very strongly in favour of enclosing lands, making plantations, and fallowing. The author seems to have been an educated person, and to have entertained very sound views and enlarged comprehensions.

LXXX.—Richards, 1730.

John Richards, of Exon, wrote "The gentleman's steward, and tenants of manors instructed," London, 8vo., 1730. The book is of 127 pages, and bound into a volume, with anonymous essays on agricultural subjects. It treats the values of freeholds, copyholds, and leaseholds, on lives and for years, with the disbursements and casualties that houses and lands are exposed to, with many tables for valuing estates on lives, with the use and description of an instrument for discovering the number of feet in any timber trees before they are cut down, by inspection only. The book could have been useful only in some few cases of occurring practice.

LXXXI.—Tull, 1731.

Jethro Tull was a gentleman of an ancient family in Yorkshire, which had been seated in the county of Oxford, and possessed a landed estate there. He was born on the paternal property in that county, but not known at what precise date of time. He was educated at one of our universities, adopted the legal profession, became a member of Staple Inn, and was called to the bar in December, 1693, by the benchers of Gray's Inn, though generally said at the Temple in most accounts of his life. He made the tour of Europe, and was a keen observer of the soil, culture, and vegetable productions of the countries which he traversed. On his return to England he married, and settled on his paternal farm in Oxfordshire, where he began to introduce a number of agricultural experiments, among which he contracted a pulmonary affection, which sent him to Montpelier to seek a cure in the mild latitudes of Italy and the South of France. Here he attended most diligently to the culture of those countries—writing facts and drawing inferences with a very keen and ardent speculation. He returned to England with repaired health but dilapidated fortune—part of the Oxford estate was sold before his departure, and he now settled with his family on a farm of his own, called "Prosperous Farm," near Hungerford, in Berkshire, where he adopted the firm resolution to perfect his former inexperimental undertakings.

Mr. Tull had very early observed the chance practice of gardeners in planting beans in rows, and in Lombardy he saw leguminous crops hoed and cleaned of weeds by means of the seeds falling into the seams of wide ploughing, and rising in rows or drills, which had descended as practice from the ancient Romans. He conceived that all plants used for crops should be placed in rows, and hence came the theory of drilling the ground for being planted. Tull had also noticed the great benefits of the soil being pulverized, or minutely severed in the particles; he had read on the subject, as the observation was as old as any records

exist. On these two principles he set to work on his farm, and experienced the usual difficulties that attend all new undertakings. The soil of the farm was not favourable to the drill cultivation; the old implements were unsuitable and clumsy; the workmen were awkward and unwilling, and, as usual, would break the new implements in order to continue the lazy working of the old ones. In the midst of these difficulties the expenses were much enhanced, and the usual condemnation was passed on the absurd attempt. But the utility became evident, and Tull was induced by the neighbouring gentlemen who saw its value, to publish his theory, which he did in 1731, in folio, price 6d., called "New horse-hoeing husbandry, or an essay on the principles of tillage and vegetation." This work was only a specimen, and was followed, in 1753, by "Horse-hoeing husbandry," folio, price 10s. It has lately undergone some alterations and additions, and was published by Mr. Cobbett in 1829. Tull died in January, 1740, at his seat at Prosperous Farm. He had a son, John Tull, who proved an adventurous genius, being a good mechanic, and had various success in different inventions. He first introduced into England the travelling by post-horses, for which he obtained a patent in 1737. He served in the army, resumed his schemes, and, not having capital to forward the undertakings, he was arrested for debt, and died in prison in 1764. His exit is often erroneously attributed to his father, who ended his days on the farm in Berkshire, as above stated.

Jethro Tull commenced his system of husbandry by making the ridgelets of land three feet apart, and planting upon each ridge two rows of vegetables in a nine inch distance. The wide intervals were wrought by the horse-hoe, and the narrow ones by the hand-tool. It does not appear that his ideas ever advanced beyond this conception, or that he had ever contemplated the uniform ridging of land over extensive fields. His construction of new implements would necessarily be imperfect, as all new ideas must be on almost any point, and hence the bad success of that, and most similar undertakings, where many influences concur to present an opposition. Ardent temperaments are generally deficient in the solidity that is required for an efficient practice, and it needs much longer time than the life-term of one individual to bring into any degree of perfection the attempts of genius, however they may be plausible and easy of attachment. Tull succeeded as well as circumstances would allow—his means, time of life, nature of soil and climate, unmatured state of ideas, and the customary oppositions. He showed a grand principle, and left to others the development of its action.

Our author derived the idea of sowing grains by machine from the rotary mechanism of an organ, which laid the foundation of all sowing implements. His drilling of land produced every ridging of ground that has been done, and his ideas of the pulverisation of soil superseding the use of manures have led to the continued practice of reducing land to the finest possible state. It required more loamy soils than are found in South Britain, and a cooler climate, with more frequent rains and dews, to show the full value of Tull's conceptions on the drilling of green crops. Where he operated the main elements were against him, as is now evinced by the best modern practice. On the other hand, the drilling of grains succeed well in dry climates; but the placing of these vegetables in rows yet remains to be of doubtful value. Tull's practice died with him; but his book got into the hands of Tweedside farmers, one of whom failed in his attempts to establish the system on an unfavourable soil, and the other succeeded on gravelly loams, and pushed a most unexampled success. The Norfolk two-horse plough led to the single drilling of land, and Tull's hoeing and scarifying of land by frequent movements of the soil have completed the modern system of green-crop cultivation.

The name of Tull will ever descend to posterity as one of the greatest luminaries, if not the very greatest benefactor, that British agriculture has the pride to acknowledge. His example furnishes the vast advantages of educated men directing their attention to the cultivation of the soil, as they bring enlightened minds to bear upon its practice, and look at the object in a naked point of view, being divested of the dogmas and trammels of the craft with which the practitioners of routine are inexpugnably provided and entrenched. His system most completely revolutionised the whole practice of British agriculture—a proud pre-eminence certainly for any individual to attain. The full benefits have not yet been derived, for the clay lands remain to be subdued by the action of pulverization after the loamy soils and light lands have been exhausted by the application.

Tull pushed his theory to the extreme of supposing that a very minute pulverization of the soil would supersede the use of manure, and that the process would enable the land to produce a continued succession of crops in any kind of the suitable plants, even of the same vegetable in the yearly growth. Experience has not yet sanctioned this result; but if Tull failed to show this extreme use of pulverization in superseding the use of manures, he has amply succeeded in proving a comminuted condition of the soil to be very highly favourable to the action of every fertilizing substance. It is an inherent quality of genius to make

erratic strides; and as the danger of mistakes is ever much greater than the means of avoiding them, a satisfaction must be entertained when the success bears any tangible degree with the failures. In Tull's case the ratio is large and the fall insignificant.

Amateurs in farming yet make pilgrimages of curiosity to the "Prosperous" farm of Jethro Tull, where the out-buildings remain in some part of the houses as they were used by the father of the drill husbandry. The dwelling-house is modernized, and the locality is found in the parish of Shalborne, under the Coomb Hills, about four miles south of Hungerford. No stone or memorial of any kind marks the grave of Tull—it is even unknown where his mortal remains were laid. Such was the reward of a genius which was always genuine, and never went to bed.

LXXXII.—Miller, 1731.

Philip Miller, F.R.S., was gardener and botanical demonstrator to the Apothecaries' Company, at Chelsea, which office was held by his father, whom he succeeded in 1722. He was born in 1691, and died in 1771. Miller published largely on gardening and botany, and translated into English from the French language, "The elements of agriculture," by Duhamel. No work of Miller's is written expressly on agriculture, but bearing a close relation to it; his name is usually included in the lists of authors on rural subjects. His works are—"Gardener's and florist's dictionary; or, a complete system of horticulture," 2 vols., 8vo., 1720. This work passed through six editions. "A method of raising some exotic seeds, hitherto reckoned impossible," appeared in the "Philosophical Transactions" of 1724. "An account of bulbous roots" had a similar publication. "A catalogue of trees, shrubs, and flowers, which bear the open climate of England," 1730, folio, coloured plates. "A catalogue of the plants in the Botanic Garden at Chelsea," 1730, 8vo. "The gardeners' calendar," 8vo., 1731. This work had much popularity, and passed through several editions. "Figures of plants to illustrate his dictionary," 2 vols., 1730. "The method of cultivating madder," 4to., 1732. "Elements of agriculture, from the French of Duhamel," 2 vols., 8vo., 1734. Besides several essays and letters on scientific subjects.

LXXXIII.—Ellis, 1732.

William Ellis was a farmer of Little Gaddesden, near Hemel Hempstead, in Hertfordshire, and evidently a person of intelligence. He travelled much both in this country and on the continent, and gave to the world the following works, as the over-flowings of his knowledge:—"Practical Farmer, or Hertfordshire Husbandman; containing improvements in husbandry," London, 173 "Chiltern and Vale Farming explained," I 1733, 8vo. "New Experiments in Husb London, 1736, 2 vols., 8vo. "The Timb improved, or the best practical methods of i ing different lands with proper timber," I 1738, 8vo. "The Modern Husbandman, o tice of farming," London, 1744, 8vo. Country Housewife's Family Companion, or able directions for whatever relates to the m ment and good economy of the domestic cc of a country life, according to the present of the country gentlemen, yeomen, and f wives, in the counties of Hertford, Buck other parts of England," London, 1758, 8vc 5s. "The Complete Planter and Cyderes new method of planting cyder-apple and per trees, and the most approved ways of ma der," London, 1757, 8vo. "Ellis's Hus abridged and methodised," London, 177 vols. 8vo., 10s. 6d. A sort of compound whole of Mr. Ellis's works on agriculture.

"Chiltern and Vale Farming explained" an octavo volume of 400 pages; and treats th ping of sour clay lands, with the commo and leguminous plants; the natural and s grasses; ploughing in general; seeds; weeds for a corn steep; horse-hoeing; turnips, value; manures in general. The wheel- with two mould-boards, is figured and larg scribed; and the author seems very fond of posed value. The management of the w confused; the planting of oak and fruit tree introduced in the very middle of a book or lands. The grains are separately discussed management and value, and the following is given of beans:—

Rent of an acre of land in one year..	£0
Ploughing once, straining in the beans, and harrowing	0
Seed four bushels	0
Mowing and cocking an acre of them	0
Carrying four loads out of the field	0
Thrashing and cleaning thirty bushels of beans	0
Taxes and tythe	0
	£2
Whereof received for 30 bushels of wheat	£2
For straw and chaff	1
	£3
Profit	£1

Oats yield a profit of £1 1s.; and in the yea quoted by the author, wheat cost 10s. 9d., an

3s. 6d. on an acre. The artificial grasses are white and red clovers; sainfoin, lucern, ryegrass, and cowgrass. The latter plant means the cowgrass, or Trifolium medium of botany. The manures are well described; but no new substance is added to former lists, only hoofs come very near to the knowledge of bones. Of lime the author thinks that calcination sets free and enables to act a balsamic alkaline salt that is coagulated in the crude stone or chalk, and till the acid barren quality is evaporated by fire, the salts in them are of little or no signification to the land. Fire, fermentation, and putrefaction cure the dead quality and bring out the dormant powers. Lime is used in three ways—by mixing it with turf or mould, by being sown over the ground when pulverized, and over the ground with turnip seed, on a clover ley sometime previous to being ploughed. He thinks hot lime kills the small animals of the soil, and that it must benefit lands of every kind in some degree. Chalk is reckoned an excellent alterative, and corrects every kind of acidity.

"The Practical Farmer, or the Hertfordshire Husbandman," is of 223 pages of small octavo size. It has gone through five editions. It treats the meliorating of soils, the grains, grasses, cows, sheep, and suckling of calves; pigeons and rabbits; forest trees; manures, hops, foreign wheats; comparison of different methods of farming. The author recommends horse-hoeing of peas and beans, and burnt clay as a manure, and seems fully aware of the vast benefit to light lands from consuming the turnips on the ground by sheep. Cows pay £4 a-year clear profit by suckling fat calves, or from butter and cheese, and last for ten years. The diseases are treated and cured. The author reckons sheep the most eligible of all animals, and where they are not kept a farmer's destiny may easily be read. The rot is the great misfortune, and is caused by water, and grows. It is cured by salt and dry food. Fruit trees are not forgotten for the farmer's use, and the making of cyder and perry. Manures are mentioned, but not at much length, and hops are noticed; the comparison of the farming of different counties; states the practices of use, but does not enter into the merits of preference.

"The Modern Husbandman" is an octavo of 21 chapters, which describe the sowing of grains, turnips, use of manures, wheel-carriages, and the artificial grasses. This work came out periodically, and was completed in 1744, in eight volumes, 8vo., price £2 2s. It was subsequently abridged, and much reduced in price. The volume above quoted seems designed for the beginning of the year.

"The Timber Tree Improved" occupies 110 8vo. pages, and is bound with other tracts into a volume of good size. The different trees of timber and fruit are separately considered, and the value duly estimated. The proper soil for each kind of vegetable is accurately ascertained, and the management discussed.

"New Experiments in Husbandry" for the month of April occupies 124 octavo pages, and is bound with the last mentioned work. It treats several processes of ploughing; the transcendent uses of the late-invented Hertfordshire double-plough; improvements of grain, grasses, manures, and trees; prevention and cure of rotten sheep, also of the red-water and foot-rot; keeping of hogs, cows, and horses from diseases; the bites of jockeys exposed; of pickling pork, and the proper vessels to keep it in. The breeding of fowls, and new invented rowl. Letters and answers concerning husbandry, with other beneficial matters tending to the improvement of this most useful science.

"A Complete System of Experienced Improvements made on sheep, grass lambs, and house lambs, or the country gentleman's, the grazier's, the sheep dealer's, and the shepherd's true guide in the most profitable management of these most serviceable creatures," is an octavo volume of 383 pages, showing how the best of sheep may be bred, how to preserve them from surfeits, scabs, wood-evil, white and red-water, the rot, and other distempers. How to cure sheep when wounded or diseased, so that there may be no loss in that way. How to preserve sheep from hoving or surfeiting, and to promote their fattening. How to make ewes take the ram at any time of the year. How to secure lambs from being killed by foxes. How to convert fallen sheep into profit. How to teach dogs for the shepherd's use. Many impositions exposed relative to sheep and lambs. The newest method of suckling house lambs in the highest perfection.

The author reckons a lame shepherd and a lazy dog the best attendants on a flock of sheep; because they drive the animals leisurely, give the due time for feeding in the places where the best living is found. This conclusion approaches the opinion that in enclosed countries which maintain heavy sheep, the shepherd should be without a dog, or the beast must be severely broken into discipline. The kinds and qualities of dogs are described at length, and the following verses on a dog conclude the chapter:—

The dog among the quadrupeds
For sport and faithfulness exceeds
All other beasts. He best attends
His master's call, his horse defends;
And tho' he's driven away with spurns,
With wagging tail he still returns.
When you his excellence display,
He's sensible of what you say,

And in dumb show his thanks does pay.
He swims where'er you take the ford.
Where'er you sail he goes on board.
With you o'er rugged Alps he goes,
And guards you through a crowd of foes.
Still all the day he keeps in view,
Nor is he in the dark less true,
He loves not him that loves not you.
Through all the windings of the wood
He toils to make your pastime good:
Runs down for you the nimble hare,
And it, untore, in's mouth doth bear:
Pursues all game through bush and brake,
Not for himself, but for your sake.
When you repose he couches by,
Or bears his chain contentedly—
Your houses, and your poultry guards,
Drives thieves and foxes from your yards:
In sleep secures your household store,
He drives all treachery from your door.
He asks no dainty bit or cup
Profuse to keep his spirits up;
Content your dirty plate to lick,
A crust to gnaw, or bone to pick.—
Who would not such servants please?
Who would not love and harbour these?

In this volume the author enlarges on the great value of turnips to the sheep farmer, and thinks it the most valuable plant yet known in agriculture. He describes well the drawing of the best store sheep after harvest to be fattened on turnips, and calls the cultivator of ground an "afternoon farmer," who does not grow large breadths of turnips and rape for the use of the sheep flocks. The feeding of turnips by hurdling the animals on the ground, was as well done then as now, and is most correctly described. The folding of sheep on the summer culture of lands is much recommended, and to be done by the store flocks. The suckling of fat lambs is amply described; the artificial foods to be given in troughs, as meals, pollards, and powdered chalks: the diseases and cures are not neglected, and the volume concludes with a notice of wool and the shearing of sheep; the value of skins, hoofs, and horns.

As Bradley's work was the first publication on the animals of the farm, so this first work of Ellis's is the first book in the agricultural world on the subject of sheep, which it treats exclusively. It shows large knowledge of the subject in every detail, and a very useful mode of conveying the information. The works of Ellis are differently stated in every list of authors that has been compiled; no two catalogues give them a like, and use the same titles or dates. Our list of the whole works by the author is taken from the "Bibliotheca Britannica," and the books noticed and described were found in the British Museum. It is curious that the last mentioned work "on sheep" is not found in any list of Ellis's works, not even the "Bibliotheca Britannica—our research found it in George the Fourth's library in the British Museum. It is probably the most valuable of all the author's works.

Ellis was not the author of any originality on the subject of agriculture, nor did he write any conception that merited that appellation. But he was a large promoter of the art both by precept and example, and consequently occupies a niche of no low standing in the temple of agricultural fame.

LXXXIV.—Rowe, 1734.

Jacob Rowe, Esq., Gent., wrote, "All Sorts of Wheel-carriages Improved, with cuts," London, 1734, 4to., price 1s. This essay occupies 38 quarto pages, and is illustrated with copperplates of wheels and axles. To cancel friction, the author says that the axle must revolve with the wheels, and the axis must not touch any part of the bottom of the machine during the turnings. He seems to have adopted the idea of low wheels of two feet in diameter, and without any cylindrical concavity, as is now used.

LXXXV.—Phillips, 1735.

Robert Phillips wrote "Dissertation concerning the Present State of the High-roads of England—especially those near London—wherein is proposed a new method of repairing and maintaining them." London, 8vo. This essay occupies 62 pages of small octavo, and is embellished with many cuts of the formation of the centres of roads, sides, ditches. It was read before the Royal Society and much approved. The author recommends to screen the earth from gravels, and to make dry the beds of roads; to make deep side ditches, and keep them in clear running order.

LXXXVI.—Thomson, 1735.

Weston states George Thomson to be the author of an account of a thrashing-machine invented at Dalkeith in Scotland, which in a minute gives 1320 strokes, as many as 33 men. It goes while a water-mill is grinding, but may be turned with wind or horse.

Our research altogether failed to obtain any notice of this work, or even of the author, in any catalogue of books or lists of authors, except the above notice by Weston, who ascribes to the same author "Short Method of Discovering the Virtues of Plants." It is known that the first idea of a thrashing-mill in Scotland conceived the notion of a number of flails, and that sometime elapsed before the cylinder with scutchers and rollers found way into use, or even into an ideal existence; and curiosity would have been much gratified by a perusal of this early notice of an implement in which Scotland can justly claim the whole originality.

LXXXVII.—Moore, 1735.

John Moore wrote "Columbarium, or the pigeon-house, being an introduction to a natural history of tame pigeons," London, 1735, 8vo. The essay occupies 60 pages octavo, and gives an account of the several species known in England, with the method of breeding them, their distempers and cures. The author had been an educated person, both from the language he employs and the practical directions on every point of detail. The pigeon-house is very correctly explained, the food for the animals, their usefulness, and the value of their dung. It is a valuable work of the kind.

LXXXVIII.—Bracken, 1735.

Henry Bracken, M.D., wrote several works on farming, which were esteemed, and passed through several editions. Weston ascribes to him "Gentleman and Farmer's Guide," 8vo., price 1s. 6d. The books on farming are found in the British Museum, and are printed with the author's name in the "Bibliotheca Britannica—but no notice is made of Weston's "Farmers' Guide" which rests on his sole authority.

LXXXIX.—Trowel, 1739.

Samuel Trowel, gent., wrote "Treatise of Husbandry and Gardening," London, 1739, 8vo., and in German at Leipsig in 1750. It is a plain and practical method of improving all sorts of meadow, pasture, and arable land, &c., and making them produce greater crops of all kinds, and at much less than the present expence.

Under the following heads;—

1. Of wheat, rye, oats, barley, peas, beans, and all other sorts of grain.
2. Turnips, carrots, buck-wheat, clover, hemp, rape, flax, and coleseed, &c.
3. Weld or would, woad or wade, madder, saffron, &c.
4. Meadow, pasture grounds, and the different manner of feeding cattle, and making other improvements agreeable to the soil of the several counties in Great Britain.
5. Hops, forest and fruit trees, vine and garden fruits of all sorts.
6. All kinds of flowers, shrubs in general, and green-house plants.
7. A curious scheme of a farm, the annual expense of it, and its produce.

With many new, useful, and curious improvements never before published. The whole founded on many years' experience.

The book is a thin octavo of 164 pages, in a well-arranged and concise order. No mention is made of manures, except of an artificial mixture which has no name put to it, and a manure liquor for soaking grains to be sown. The author has not risen above joining with agriculture the description of fruits; which continues the evidence that the forest yielded the food of man before the grains were known, and therefore formed a long standing consideration. It required a time beyond the date of our notice to separate the herbs and fruits into special departments.

Trowel may have been of the legal profession, as his work is dedicated to the Treasurer and Masters of the Inner Temple, to whom he had acted as steward. He shows himself to have been an educated person, and had travelled much over the kingdom. The annual expence of a farm of 180 acres of arable land, and 20 acres of meadow and pasture, let at £100 per annum, is culculated to amount to £567 1s. 3d., and the produce to £910, eaving for clear profit the sum of £342 18s. 9d. Five quarters per acre is stated as the produce of wheat, barley, oats, beans, and peas.

Educated amateurs are more deficient in practical calculations than on theoretical conceptions. The former too often overturn the stability of the latter, and throw a discredit on the most plausible entertainments. Practice with all its dogmas is ever required to guide and sober down the flights of ideal states of existence.

XC.—Murray, 1740.

The "Bibliotheca Britannica" states that Sir Alexander Murray, of Stanhope, Bart., wrote "True Interest of great Britain, Ireland, and our Plantations, or a proposal for making such a union between Great Britain and Ireland, and all our plantations, as that abready made between Scotland and England." To which is added "A New Method of Husbandry, by greater or lesser canals in Scotland; also a letter and remonstrance to Lord Hardwicke, on the miserable state of Scotland," London, 1740, folio. This work is nowhere else noticed, either in a list of authors or of books, so that nothing can be known how, or by what means it was proposed to introduce a new husbandry by canals, or what were the very particular modes of proceeding. It is always pleasant to know the ideas of men, and when no result follows the inspiration must be allowed the consideration of reality.

XCI.—Blackwell, 1741.

Alexander Blackwell, M.D., was a native of Aberdeenshire. He studied physic at Leyden, under Boerhaave, took the degree of M.D., practised as physician at Aberdeen, and afterwards in London; but meeting with no success turned printer, and was bankrupt in 1738. About 1740 he went to Sweden, became projector, and laid a scheme before His Swedish Majesty for draining the fens and marshes. He was suspected of being concerned in a

plot with Count Tesin, and was beheaded in August, 1748. His wife Elizabeth was the author of a curious herbal. Blackwell wrote "A New Method of Improving Cold, Wet, and Barren Lands, especially of Clayey Grounds," in 8vo. The book was printed in Swedish, at Stockholme in 1746, in 12 mo.

This author is noticed, as has been now related, by Loudon in his Catalogue of British Authors on Agriculture, and also by Weston; the "Bibliotheca Britannica" does not print his name, and the libraries of the British Museum do not possess the book. Both the last mentioned repositories contain the "Herbal," published by Mrs. Elizabeth Blackwell, and totally omit the husband's name. The work of Blackwell may not have acquired any degree of notoriety.

XCII.—Robinson, 1744.

James Robinson is stated by the "Bibliotheca Britannica" to have written "Harlean Miscellany, seu collectiorariorum tractatuum," London, 1744, 8vo. These consist of several articles on agriculture and botany. The names are not found in any other collection of writers or titles, and the work does not appear in any library.

XCIII.—Wickham, 1755.

The "Bibliotheca Britannica" prints Moses Wickham, of Hatfield, in the county of Hertford, as the author of "The Utility and Advantages of Broad High Wheels demonstrated rationally and mathematically, so far as to be understood by the meanest capacity," London, 1755, 8vo. No other notice occurs of this author, or the work on wheels, except by Weston.

XCIV.—Lisle, 1756.

Edward Lisle, Esq., of Crux Easton, in Hampshire, was the author of "Observations on Husbandry," 4to., price 18s. The work was published from the author's manuscript by his son Thomas Lisle, D.D., and a second edition followed in two volumes, 8vo., price 10s. The book forms a quarto volume of 450 pages, and treats arable land; manure and manuring; plough and cart tackle; ploughing; harrowing; picking up stones; sowing; rolling; corn in general; wheat, rye, barley, oats, buckwheat, beans, peas, vetches; reaping and mowing; raking; carrying of corn; thrashing; reeks; granaries; thatching; malt and malting; hops; grazing; foddering; fatting of cattle; turnips; grasses; meadows; pastures; downs; bulls and oxen, cows and calves; diseases in cows and calves; the dairy sheep and lambs; of shearing sheep, of folding sheep, of feeding and fatting sheep; diseases in sheep and lambs; horses, asses, and mules; wood; fences; orchard, and fruit garden; kitchen garden; weeds; water and watering; workmen and work; of the farm-yard; hogs, poultry, pigeons, bees; hay; wool; hides; rise and fall of markets and their causes; weather; enemies to husbandry.

Lisle's book has ever been very deservedly esteemed—his enquiries had been very extensive, and the observations and deductions are acute and very honest. Turnips were well known to the author, and the broadcast raising of the crop of plants is most accurately described; the over cropping of lands after being limed, and pared, and burned, is well understood, and to be avoided. A complete body of husbandry is not pretended; some things are slightly touched upon, and some others, as hemp and flax, are not mentioned at all—and many other useful observations might no doubt have been added; for, as Mr. Lisle as observed, "the variety of the subject is never to be exhausted." Every day produces new inventions and improvements in agriculture—perfection is unattainable—and every candid tiller of the soil must acknowledge a deficiency in some particulars relating to his profession. The author's son, who published the work, gave it to the world as he was able to copy the manuscript, and hoped it would assist those who were already practitioners; show them the opinions of others in doubtful and disputed cases, and the usages of distant counties of the kingdom; encourage them to make trials—caution them against many errors, and often save them much labour and expence, by communicating experiments already made to their hands. He regrets that his father did not live to revise and put into form the observations he had made, as they would have become much more acceptable to the public than could be done by his own professional ignorance. The advertisement is dated from Burclere, Hants, Sept. 1st, 1756, Thomas Lisle.

The book is embellished with a portrait of the author as a frontispiece, and is certainly a fine engraving, showing the breast and face, in the loose mantle and large flowing wig of those days, in a style fitted for the bench of any judicial court. Lisle was a very superior person, and promoted the art of agriculture, though he did not originate any thing wholly new, or devise any better mode of executing the old performances. He collected the best ways, and put them forth to be imitated.

XCV.—Sheldrake, 1756.

Weston ascribes to ——— Sheldrake, M.D., "A Treatise on Welch Farming," price 1s. It appears that this author was a scientific surgeon of Westminster, and that the name and authorship extended from father to son. The professional works are printed in the "Bibliotheca Britannica," and are found in the British Museum—but no notice is any

where made of the treatise on farming, which rests on the sole authority of Weston.

XCVI.—Hill, 1757.

Weston ascribes to John Hill, M.D., "A Complete Body of Husbandry," with copperplates, in folio, price £1 11s. 6d. This work is nowhere found in attachment with the name of Sir John Hill, who must be supposed to be the author mentioned by Weston.

He was born about the year 1716, and after serving as an apothecary, failed in London in that profession. From it he caught a relish for botany, and studied, and published on that natural science. He was much noticed and recommended, and wrote largely on different subjects, on natural history, essays, articles, novels, and romances. He had superior talents, but was not very happy in the application of them. It is unrecorded how he arrived at the honour of knighthood.

In connection with our special purpose, Sir John Hill published "Eden, or a Complete Body of Gardening, 60 plates coloured," London, folio, "The Gardener's New Calendar," with plates, London. "An Idea of a Botanical Garden in England." "The Sleep of Plants, and cause of motion in the sensitive plant explained." "The Gardener's Pocket-book, or country gentleman's recreation, being the kitchen, fruit, and flower garden displayed. Hill died in 1775.

The list of the works of this author occupy nearly a column and half of the very small type of the 'Bibliotheca Britannica," but among them is not found the work on husbandry, and the libraries of the British Museum no not possess it. There has been seen a large folio work of two volumes, with many plates of the date of our notice, and without any author's name attached, called "A Complete Body of Husbandry." To this book Weston may have fixed the name of Sir John Hill without any authority, and probably with some assumed supposition that prevailed in his time. Subsequent quotations may have been copied from Weston, in the same way he forms our authority for the above notice.

XCVII.—Claridge, 1757.

This person published "The Country Calendar, or the Shepherd of Banbury's rules to know of the change of the weather." This work is in octavo, and occupies 64 pages of twenty-six chapters or divisions, each of which states a mark or sign of prognostication. The statements are said to be grounded on forty years' experience, and were much reputed at the time of publication. The following old sayings are used in the work itself:—

Janiver freeze the pot by the fire.
If the grass grows in Janiveer,
It grows the worst for't all the year.
The Welchman had rather see his dam on the bier.
Than to see a fair Februeer.
March wind and May sun
Makes clothes white and maids dun.
When April blows his horn,
It's good both for hay and corn.
An April flood
Carries away the frog and her brood.
A cold May and a windy
Makes a full barn and a findy.
A May flood never did good.
A swarm of bees in May
Is worth a load of hay.
But a swarm in July
Is not worth a fly, &c., &c.

Our record inserts this name in compliance with other lists of authors, though the work is very trifling. Weston does not print it in his catalogue of authors, but the name appears in Loudon's list, and the book is found in the British Museum.

XCVIII.—Home, 1757.

Francis Home, M.D., was Professor of Materia Medica in the University of Edinburgh. He wrote "The Principles of Agriculture and Vegetation," being a prize essay, written for a society in Edinburgh, established for the encouragement of arts and manufactures. The book is a thin octavo of 179 pages, divided into five parts of sectional portions. The plan of the whole is subjoined, as it is the first regular attempt to put agriculture on scientific grounds.

Part 1.

Sect. 1. Causes of the slow progress of agriculture, connection of chemistry with it, and division of the subject.
2. Of different soils.
3. Of the rich black soil.
4. Of the clay soil.
5. Of the sandy soil.
6. Of the chalky soil.
7. Of till.
8. Of the mossy soil.

Part 2.

1. The natural method of providing vegetable food.
2. Of manures, or the artificial method of providing vegetable food.
3. Of marl.
4. Of unburnt calcareous bodies, and quicklime.
5. Of vegetables in an entire and in a corrupted state, and of dung-hills.
6. Of manures from burning vegetables.
7. Of animal manures.

PART 3.

1. The effect of different substances with regard to vegetation.
2. Of the food of vegetables.

PART 4.

1. Of opening and pulverizing the soil.
2. Effects of the atmosphere.
3. Change of species.
4. Of ploughing.
5. Of composts.
6. Of vegetation.

PART 5.

1. Of weeds.
2. Of a wet soil.
3. Of rains.
4. Of poultry seeds.
5. Of diseases of plants.
6. Plan for the further improvement of agriculture.

The knowledge of this book is of a high order, and conveyed in language that shows the educated scholar. The time now appeared when any single subject was not being clogged with extraneous matters, which most completely bewilder the writers of early times, and buried the subject almost beyond being at all discovered. But in this work the intended subject is never dropped, nor any irrelevant matter introduced. The sections are short, pithy, and concise, and the work is not exceeded by any similar publication of the present day. In order to promote agriculture the author proposes a larger spirit of experiment making over the country, to be communicated in the results by means of the appointed channels. Agriculture must proceed upon facts and experience: reason has not much to do with it, but chance and design have the chief influence. The author adopts the common opinion of the action of quick-lime, that it dissolves animal and vegetable substances, and converts them into mucilaginous matters. He very judiciously advises lime and farm-yard dung to be applied to the land at the same time, but not in mixture. Home's book must have been a valuable production at that early time, and is such at any time.

XCIX MAXWELL, 1757.

Robert Maxwell, of Arkland, wrote "The Practical Husbandman, being a collection of miscellaneous papers on husbandry, &c., dedicated to the Right Hon. William Pitt, Esq." Much information is conveyed in the letters of enquiry, and the answers thereto, by the leading improvers in Scotland, where the spirit began to move about this time. The volume contains 432 pages, and there is figured the Rotherham plough, as constructed by Lummis, the first maker of that implement. The beam is straight and the handles short.

C. WOOD, 1757.

Weston states John Wood to have been the author of "New compendious treatise of farming," in 8vo. No other list of books or authors contains this name or title; the Bibliotheca Britannica gives to John Wood "Compendious treatise on farriery," in 8vo., 1757, and as the statement differs from Weston only in farriery for farming, the supposition may be just that the person is the same, and that Weston may have inadvertently placed farming for farriery.

CI. BROWN, 1758.

Weston makes R. Brown, of Hill Farm, Somersetshire, to be the author of "Complete farmer;" 2 volumes, in 12 mo., price 6s. The name of this author, and title of the work, have no other authority that can be found.

CII. MORRIS, 1759.

Corbyn Morris, Esq., F.R.S., wrote "Plan for arranging the accounts of landed estates;" London, 1759, folio. This author wrote on various subjects, as insurance, the currency, growth and policy of large cities, and the laws of mortality. The accounts of a landed estate occupy 39 folio pages, and contain a Dr. and Cr. side of sums and disbursements, in which are entered all receipts and payments without exception, and having annexed the particulars of every transaction. Next is an entry-book, with each farm on the estate separately placed on both sides of the account, the receipts from the farm occupying the Dr. side, and the Cr. side showing the disbursements made from the special extent of ground. The abstract shows the succinct state of all the branches in any period, best of one year - the Dr. side exhibiting a list of all the branches of the estate, and of the several tenants or agents, with the gross income, and any casual produce attached; the Cr. side shows the gross receipt during the fixed period, so that the gross income and gross receipt are easily compared.

The author possessed a landed property, and devised this account book for his own use, and it has a very considerable merit.

CIII. NORTH, 1759.

Richard North, nursery gardener, near Westminster Bridge End, Lambeth, wrote "An account of the different kinds of grasses propagated in England for the improvement of corn and pasture lands, lawns, and walks, with directions for sowing and manuring them; and an account of the sound-growing Norfolk willow, with directions for propagating it with advantage, the whole chiefly done from the observation and inspection of the author;" London, 1759, 8vo., price 1s. This writer is men-

tioned by Weston, and in the Bibliotheca Britannica, but the book is not found in the libraries of the British Museum.

CIV.—Mills, 1759.

John Mills, F.R.S., must have been a person of very considerable eminence, though no record exists of his life, except the bare name as above quoted. He was member of Royal Agricultural Societies of France and of Berne, and shows a comprehensive knowledge of the cultivation and use of the ground; he wrote "A new and complete system of practical husbandry, containing all that experience has proved to be most useful in farming, either in the old or new method, with a comparative view of both, and whatever is beneficial to the husbandman, or conducive to the ornament and improvement of the country gentleman's estate;" London, 1763-5, 5 vols., 8vo., price 30s. A treatise on cattle, showing the most approved methods of breeding, rearing, and fitting for use horses, asses, mules, horned cattle, sheep, goats, and swine, with directions for the proper treatment of them in their several diseases. To which is added a dissertation on their contageous diseases, carefully collected from the best authorities, and interspersed with remarks." London, 1776, 8vo., price 6s. "An essay on the management of bees; wherein is shown the method of rearing these useful insects, and that the practice of saving their lives when their honey and wax are taken from them was known to the ancients, and is in itself simple and easily executed;" London, 1766, 8vo., price 5s. "An essay on the weather, with remarks on the shepherd of Banbury's rules for judging of its changes, and directions for preserving lives and buildings from the fatal effects of lightning;" London, 1770, 8vo., price 2s.

Mills translated "Duhamel's husbandry;" London, 1759, 4to., price 16s. 6d. And also "Natural and chemical elements of agriculture, from the Latin of Gustavus Adolphus Gyllenborg;" London, 1770, 12 mo., price 2s. 6d. He was the reputed author of some essays, moral, philosophical, and political.

The five volumes of a new and complete system of husbandry, by Mills, is the first publication on agriculture that presents all the branches of the art within the compass of one work. Worlidge began the attempt, but failed in the comprehension that is required. The first volume of Mills treats "soils" in the different kinds, clays, sands, and loams; manures, animal and vegetable, and composts; of the improvement of moors, and boggy lands and all uncultivated lands; the culture of grain and pulse; the sowing and change of crops; the culture of wheat, and rye, oats, barley, maize, or Indian corn, millet, panic, rice, buckwheat; culture of pulse, viz., beans, peas, vetches, lentils, and lupines.

Volume II. contains the horse-hoing husbandry of grain and pulse; the distempers of corn.

Volume III. treats the enemies of corn; preservation of grain, turnips, potatoes, cabbages, clover, sainfoin, lucern, cytisus, burnet, natural grasses; enclosing, and the situation of farms and farm houses.

Volume IV. contains "Gardening, and the culture of hops and olives."

Volume V. treats "The making and managing o fermented liquors," and concludes with hemp, flax, madder, woad, weld, or dyer's weed, and a long appendix to each volume.

Mills leads all the previous authors in the arrangement of his work, which undoubtedly carried away the palm of agricultural writing at the time of its appearance. He joins extensively with Evelyn and Duhamel, and does ample justice to the system of cultivation proposed by Jethro Tull. Turnips and potatoes were in general use, and the Rotherham plough is figured in the work, as are also thirteen of the natural grasses.

Potatoes are entered in this work for the first time as a vegetable in the field cultivation, being about 150 years after the use of the plant was known as an esculent root. Mills quotes the authority of Miller in proof of its value and extensive utility.

This author conveys his meaning and intelligence in the true style of writing—cool and plausible, and with becoming diffidence on all scientific disquisitions. No dogmatism mars the placid tenor of his story.

The treatise on cattle is an octavo volume of 491 pages, and treats horses, asses, mules, horned cattle, sheep, goats, and swine, with the cures of their disorders, which have a dissertation on their nature. The matter is more descriptive than that of Bradley, but not so practical in the application, though much merit is attached to the knowledge it shows of the origin and progress of the different animals.

Mills was a great stickler for small farms, almost cottier allotments; he did not see that any single bodily labour can effect but very little unless in combination, and that extensive projects employ most labour, and produce the largest results. A thick mist long clouded the human vision on that and similar points, and is not yet dispelled.

CV.—Ball, 1760.

Weston writes Ball as the author of "An essay on agriculture," in 8vo., and "The farmers' guide," in 8vo. It appears that John Ball was an apothecary, and wrote several works on that business, but the list of them does not

contain the two works on agriculture, as above noticed. The libraries of the British Museum do not possess the books, and the use of the name rests on the sole authority of Weston.

CVI.—Hitt, 1760.

Thomas Hitt was gardener to Lord Manners, at Bloxholm, in Lincolnshire, and wrote "A treatise of husbandry, on the improvement of dry and barren lands," London, 1760, 8vo., price 2s. 6d. The author was a native of Aberdeenshire, and after much serving as a gardener, he became a nurseryman and designer of gardens in Kent. He died about 1710, and it appears the books were afterwards published from the M.S. found after his death. His treatise on fruit trees was much esteemed.

The treatise of husbandry makes a volume of 208 octavo pages, showing the many advantages which would arise to the nation in general by destroying of warrens and converting the lands into tillage, pastures, &c; pointing out new and cheap methods to make growing fences upon the most barren soils, and how to till and manure the same at a low expense. How to prepare the land, and raise upon it various sorts of plants to produce both poles and timber. The author writes very pertinently on enclosing waste lands—bringing the grounds into cultivation, and the raising of timber trees.

CVII. Rocque, 1760.

Bartholomew Rocque, of Walham Green, wrote "A practical treatise on cultivating lucerne grass; containing such methods as are found by experience to succeed, including the practice used in several parts of France; and some hints relative to Burnet and Timothy grass. The whole essay occupies only 46 octavo pages of very sound directions on the cultivation of the specified vegetables, which have not been superseded by the best modern practice.

The ground must be deeply ploughed or trenched for lucerne, thoroughly cleaned of weeds, and minutely pulverised, and the bed of plants scarified by harrowing, and top-dressed with a fine manure, after the mowing of the herbage.

CVIII.—Miller, 1760.

Philip Miller, F.R.S., was a celebrated gardener and botanist of Chelsea, where he was born, 1691, and died 1771. He was author of several first-rate works on gardening—translated the "Elements of agriculture" from the French of Duhamel, and published the "Method of cultivating madder in Zealand and in England." Miller's direct aid to agriculture was not large, but as he did look into it, and his labours bore not very remotely upon its illustration, a place is always given to his name among agricultural authors.

CIX.—Mordant, 1761.

John Mordant wrote "The complete steward, or the duty of a steward to his lord; containing several new methods for the improvement of his lord's estates; showing the indirect practices of stewards tending to lessen any estate, with tables for the measurement of timber; interest of money, and the value of ancient and modern coin compared. Together with several law precedents relating to the duty and office of a steward." London, 1671, 2 vols., 8vo., price 12s.

The above statement of an author and his work is used by Weston and Loudon, in their lists of British writers; and is also printed in the Bibliotheca Britannica. But the libraries of the British Museum do not contain any book or author of that name or title; and a regret may be expressed for the absence of a work which from the contents of two volumes might have conveyed some intelligence of the systems that were pursued and contemplated in those days in managing the estates of land.

CX.—Stillingfleet, 1761.

Benjamin Stillingfleet, grandson to the Bishop of that name, was an ingenious naturalist and miscellaneous writer; born about 1702, died about 1771. He wrote on various subjects, and was the author of "Miscellaneous tracts relating to natural history, husbandry, and physic." The second edition was illustrated with copperplates of the British grasses, and the work was printed both in Sweden and Denmark. Weston ascribes to Stillingfleet "An essay on the theory of agriculture, intended as an introduction to a rational system of the art;" in 12 mo., price 3s. No other notice appears of this essay in any list or library.

Stillingfleet's observations on grasses are very correct and judicious. He thinks scarcely half-a-dozen plants admit cultivation by the farmer. The figures of the plants are fairly executed. This short treatise led to the subsequent works on the subject.

CXI.—Farmer of Many Years, 1762.

This name wrote "A treatise on agriculture;" Edinburgh, 8vo., 1762. The work occupies 427 pages octavo, and the contents are divided into four books. 1. Of vegetation; 2. Of tillage; 3. Of manures and their operation; 4. Of soils.

The author manages all these subjects in a superior manner, and the work was much estimated by the Scotch society for encouraging arts and sciences; under whose auspices the publication was effected. The dissertation on soils shows no scientific knowledge, but a plain description of very common notoriety. A sprinkling of science adorns the threadbare terms of vulgar phraseology.

CXII.—Dickson, 1762.

Adam Dickson, A.M., was minister or clergyman of the parish of Dunse, in the border county of Berwick, in the south of Scotland. He was considered a good classical scholar, and an excellent practical farmer. He wrote "Treatise on agriculture;" Edinburgh, 1762, 8vo.; second edition, 2 vols., 1769, 8vo. New edition in 1785.

"The husbandry of the ancients;" Edinburgh and London, 1778.

The preface to the first work is very long, in 65 pages, and the first volume contains vegetation, tillage, manures, and soils. The second treats farm management; culture of particular plants; different schemes of management—improvements in management.

This work says nothing about animals, and consequently does not constitute a system of agriculture. The portraits of the plough show much improvement. The author's ideas are very forward, and show a large acquaintance with the subject on every point.

"The husbandry of the ancients" was published after the death of the author, and may be wanting on that account. It has always found a high value in having made accessible to all the customs and practice of ancient agriculture; containing the facts expressed in the language of the author. This mode is preferable to a pure translation, as the benefit is derived of the author's observations and professional knowledge. Dickson has ever been very justly reckoned to be a first-rate writer of the time.

CXIII.—Martyn, 1762.

Thomas Martyn, F.R.S., was the son of the professor of botany at Cambridge, where he succeeded his father in 1761. He took several literary degrees, and was Bachelor of Divinity in 1766. He died in 1825, in the ninetieth year of his age.

Both father and son of this name and profession published largely on botany, and were reckoned persons of talent and high moral worth. Only one work of the son, who is our present notice, has any relation to agriculture, and is entitled "Flora Rustica, exhibiting figures of such plants as are either useful or hurtful in husbandry; with scientific characters, popular descriptions, and useful observations;" London, 1792, 4 vols. in 2, 8vo. The figures of the plants are coloured, and pretty correct in the likeness; but grasses, legumes, and herbaceous plants, are all intermixed, and no distinction is made to separate utility from hurtfulness. Still the work is highly useful, the descriptions are very concise, and the observations most appropriate. The aid of such persons as Martyn is of vast importance in propelling the advancement of a gross art as agriculture.

CXIV.—Randall, 1764.

John Randall was some time master of the academy at Heath, near Wakefield, in Yorkshire. He wrote "Semi-Virgilian husbandry, deduced from various experiments, or an essay towards a new course of rational farming, formed from the defects, losses, and disappointments of the old and new husbandry, and put on the true basis of nature in the production of vegetables, and in the power of every ploughman with his plough to execute;" London, 1764, 8vo., price 6s. "Construction and extensive use of a new invented seed furrow plough, suited to all soils—of a draining plough, and of a potato-drill machine, with the theory of a common plough, illustrated with seven plates;" London, 1764, 4to., price 5s.

The preface of the work occupies 52 pages, and enters largely into the spirit of the contents. The whole work is a valuable one, as it embraces widely the new system of pulverization, or the drill cultivation, and applies it in very tolerable perfection. The author drills the crops of every kind, and scarifies the intervals throughout the summer. A spiky roller is figured, and two portraits of skeleton ploughs for the purpose of moving the intervals of wide drills. The education of the author enabled him to treat the subject scientifically, which he has well performed, and afterwards applied the principles to the field in the process of cultivation. The books are octavo of 400 pages.

CXV.—Ladhar, 1764.

Mr. Ladhar of Kray, in Yorkshire, wrote "The farmer's new guide for raising excellent crops of peas, beans, turnips, or rape; and cleaning the ground while they are growing, to prepare it for raising good crops of wheat, barley, or oats, in the common way of sowing the seeds clear of these weeds, which so often ruin the farmer, or keep him poor, being experiments on the various soils of stiff and light;" London, 1764, 8vo., price 1s. This statement appears in the Bibliotheca Britannica, and the author's name is written in Loudon's list of authors, but no other work is attached to it. Weston does not mention the author, and neither the book nor the name is contained in the libraries of the British Museum.

CXVI.—Billings, 1764.

Robert Billing wrote "Account of carrots and their great use in feeding and fattening of cattle;" London, 1764, 8vo., price 6d. The Bibliotheca Britannica prints this notice, and Weston does the same: Loudon makes no mention of the author, and the name nor the book are not in the libraries of the British Museum. In this case Weston is supported by the general register.

CXVII.—Bourn, 1764.

Samuel Bourn wrote "Treatise on wheel-carriages, showing their present defects, with a plan and description of a new-constructed waggon, which will effectually preserve and improve the public roads, and be more useful, cheap, and handy to the proprietor;" in three parts; London, 1764, 8vo., price 4s. 6d. Weston and the Bibliotheca Britannica are the only authorities for this name, as it is not mentioned by Loudon, nor in any library of the British Museum.

CXVIII.—Harte, 1764.

Walter Harte was canon of Windsor, and a person of literary note, as was his father before him. He was the intimate friend of Pope, and published essays on painting, reason, satire, and other subjects. He was tutor to Lord Chesterfield's son, who got him the canonry of Windsor. The times of his birth and death are not certain. He died unmarried, and devoted much time to solitary reading. One notice dates his birth about 1697, and that he died in 1768.

Harte wrote "Essays on husbandry, and a treatise on lucerne;" London, 1764, and 1670, 8vo., price 6s. Weston and the Bibliotheca Britannica make this statement; Loudon does not mention the author, and the libraries of the Briti-h Museum do not possess the book on agriculture, though the other works of the author are in the catalogue. The essays have always been reckoned good: our own opinion can say nothing of them.

CXIX.—Baker, 1765.

John Wynn Baker wrote "Experiments on agriculture, made under the directions of the Dublin Society;" Dublin, 1765, 8vo. These experiments form a thick octavo, and contain a mass of information on many points of agricultural practice, Clovers and potatoes are largely treated, and turnips rather slightly. Wheat on fallow and cloverley, is well discussed. On the whole the contents of this work are of the most enlightened practice and prospect.

CXX.—Fordyce, 1765.

George Fordyce, M.D.F.R.S., was born at Aberdeen in 1736; being the only and posthumous child of George Fordyce, the proprietor of a small landed estate near that city. He was suitably educated for the medical profession, and ultimately settled in London, as practitioner in physic, and as lecturer. He attained a very considerable eminence, and died in 1802.

Fordyce published many works on medicine, which have maintained a just reputation. He had delivered privately to some young friends lectures on agriculture and vegetation, which having been revised and corrected, were published as a book in "Elements of agriculture and vegetation" The bulk is 75 pages of octavo size, and the contents are wholly chemical—on the attraction a dissolution of bodies, substances in soils, struct and economy of vegetables, and nourishment plants. The little work has always been esteen as a very scientific treatise.

CXXI.—Lightcoles, 1766.

Weston makes J. Lightcoles to be the autho "The gentleman's and farmer's architectu being plans for parsonages and farm-houses, w pineries, greenhouses, &c.;" with 25 plates, in fo sewed, price 6s. No other notice of this aut or book is found in any list or repository. Wes often stands alone in this respect.

CXXII.—Homer, 1766.

Henry Homer, rector of Birdinham, in W wickshire, an excellent classical scholar, was b in Warwickshire, 1732, died in 1791. He wr "An essay on the nature and method of ascert ing the specific shares of proprietors upon inclosure of common fields;" London, 1766, 8 price 1s. 6d. "An enquiry into the means preserving and improving the public roads of kingdom;" Oxford, 1767, 8vo., price 1s. Th books are not found in the libraries of the Bri Museum, though the writer's name is not omi in any list of authors.

CXXIII.—Templeman, 1766.

Peter Templeman, M.D., was the son of an nent attorney at Dorchester, in the county of D set, and born in 1711. He received a univer education, and studied physic both in England on the continent. He published some professi works, and was keeper of the reading room of British Museum, when it was established in 1 He left it on being appointed secretary to the ciety of arts, manufactures, and commerce. died in 1769.

Templeman wrote "Practical observations the culture of lucerne, turnips, burnet, tim grass, and fowl meadow grass;" London, 1 8vo. The Bibliotheca Britannica and We make this statement; Loudon does not men the name, and the libraries of the British Mus do not contain any work of that title, by the w of that name.

CXXIV.—Wall, 1766.

Richard Wall wrote "A dissertation on bree horses upon philosophical principles;" Lon 1766, 8vo., price 2s. 6d. The Bibliotheca Br nica and Weston have used the name and title, neither is found in any other register or library

CXXV.—Whitworth, 1767.

R. Whitworth, Esq., one of his majesty's jus of the peace for the county of Stafford, wrot

the highways, inland navigation, and "A scheme for the improvement of broad wheels;" London, 1767, 8vo. The above statement is made by the Bibliotheca Britannica, and the book is mentioned by Weston; but it does not appear in any library, or in any other list of authors.

CXXVI.—Catesby, 1767.

Mark Catesby, Esq., F.R.S., an eminent naturalist, was born in 1679, and after spending a great part of his lifetime in America in the pursuit of his favourite science, he returned to England, and died in London, in 1749. He published several works on natural history, and Weston ascribes to him "The practical farmer, or Herefordshire husbandman;" in 12 mo., price 3s. "A plan of an experimental farm, addressed to Lord Clive;" in 8vo., price 6s. "Uniting and monopolizing farms, proved disadvantageous to the landowners;" price 1s. 6d.

None of these books are contained in the libraries of the British Museum, in which are found the other works of Catesby; nor does the Bibliotheca Britannica mention them in the list of the author's works. Loudon does not notice Catesby at all, and the insertion of his name rests on the sole authority of Weston.

CXXVII.—Young, 1767.

Arthur Young, F.R.S., was the descendant of a very respectable family, who had resided on their estate at Bradfield, Cowhurst, near Bury St. Edmonds, in the county of Suffolk, for more than two centuries. He was born at London in 1741. His father, the Reverend Arthur Young, rector of Bradfield, had three children, two sons and a daughter, of whom our notice was the younger son. He was educated at Lavenham, a school about six miles from Bradfield, and was entered into a merchant's counting house at Lynn when he was seventeen years of age. In this occupation he commenced to be an author by writing notices and novels. In 1763 he returned to the residence of his father, unsettled in life, and not fixed to any particular pursuit. He became the manager of his mother's farm of eighty acres, and enjoyed the income of £20 from the copyhold inheritance of his female parent. He always acknowleged that in this business much money was squandered, and that he was wholly deficient in the knowledge which is required for success. In 1765 he was married, and in 1767 undertook the management of the farm of Stamford Hall, in Essex, which contained about 300 acres of land. He may not have had sufficient capital for this farm, or a concurrence of circumstances soon induced him to give to a farmer the sum of £100 to release him from it, and on the same farm the new tenant realized a fortune. He wrote some essays while he farmed here, which were published in 1772, in one volume, 4to. He advertised for a farm, and he was drawn by the answers he received to undertake journeys which gave the materials to the "tours" that were afterwards written. He hired a farm of 100 acres in Hertfordshire, and upon it the success was not mediocre; the soil and climate were execrated, while the chief blame must have been his own. He engaged as reporter to the *Morning Post* newspaper, walked from London to his farm every Saturday evening, and returning on Monday morning, a distance of 17 miles, and worked, in his words, "as a coal heaver." At this date of 1775 he had received the sum of £3000 for his writings.

In 1784 he began the publication of "The annals of agriculture;" in which he acted as editor and author—a work that was continued to the time of his blindness: it comprises 45 volumes octavo, and presents a vast store of information upon subjects of agriculture and political economy. It was favoured by the assistance of able correspondents, and received very high regards. During the progress of this work, Young travelled in England, Ireland, and France. He had always entertained a favourite idea of speculating on waste lands, and he now purchased 4,400 acres of waste in Yorkshire. But other fates occurred. The Board of Agriculture was formed in 1793, and he was appointed to the post of secretary, as he was thought to be a qualified person, from his activity, zeal, professional knowledge, and general education. Like to all ardent temperaments, Young had hailed the French revolution as the dawn of a bright prospect to the human race; but being now placed under the shade of aristocracy, he rested quietly "sub silentio," and never said a word more about revolutions. He probably thought his income was more certain than anything that might lapse during the violent whirlings of a civil turmoil. He was right.

Arthur Young continued at the board till his death; he became blind, and was afflicted with an incurable disorder. He died in 1820. The following agricultural works were published by him: "The farmers' letters to the people of England; containing the sentiments of a practical husbandman on various subjects of great importance; the present state of husbandry; the importance of timber and planting;" London, 1767, 8vo., 6s. "The farmer's letters to the landlords of Great Britain;" London, 1772, 8vo., 4s. "A six weeks' tour through the southern counties of England and Wales;" London, 1768, 8vo., price 5s.—chiefly with regard to agricultural affairs. "Treatise on the management of hogs, including experiments on the curing and fattening of them;" London,

1768, 8vo. "A six months' tour through the north of England; containing an account of the present state of agriculture, manufactures, and population in several counties of this kingdom;" illustrated with plates; London, 1770, 4 vols., 8vo. 24s. "The farmer's guide in hiring and stocking farms, with plans of farm yards, and sections of the necessary buildings;" London, 1770, 2 vols. 8vo., 10s. 6d. "Rural economy, or essays on the practical part of husbandry; designed to explain some of the most important methods of conducting farms of various kinds, including many useful hints to gentlemen farmers relative to the economical management of their business;" London, 1770, 8vo. 4s. "A course of experimental agriculture, containing an exact register of all the business transacted during five years on near 300 acres of various soils; including a variety of experiments on the cultivation of all sorts of grain and pulse, both on the old and new method; on the management of live stock;" London, 1770, 2 volumes, 4to., 30s. "The farmer's tour through the east of England, being the register of a journey through various counties of that kingdom, to enquire into the state of agriculture, manufactures, and population;" London, 1770, 4 vols., 8vo., 24s. "Proposals to the legislature for numbering the people;" London, 1771, 8vo. "Observations on the present state of waste lands in Great Britain;" London, 1772, 8vo. "Political arithmetic, containing observations on the present state of Great Britain, and the principles of her policy in the encouragement of agriculture;" London, 1774, 8vo., 4s. "Tour in Ireland, with general observations on the estate of that kingdom, made in 1776-7-8 and 9; Dublin, 1780, 2 vols., 8vo. "An essay on the culture of cole-seed for feeding sheep and cattle;" 8vo. "Annals of agriculture and other useful arts;" published in numbers. Bury St. Edmunds, 1786 to 1804, 40 vols. 8vo. "The question of wool stated;" London, 1787, 8vo. "The example of France a warning to Britain;" London, 1793, 8vo., 2s. 6d. "Travels during the years 1787-8 and 9, undertaken more particularly with the view of ascertaining the cultivation, wealth, resources, and national prosperity of the kingdom of France;" Bury St. Edmunds, 1792, 4 vols., 32s. "General view of the agriculture of the county of Suffolk, drawn up for the Board of Agriculture;" London, 1797, 4 vols., 8vo. "An enquiry into the state of mind among the lower classes, and on the means of turning it to the welfare of the state;" London, 1794, 8vo., 1s. "General view of the agriculture of the county of Lincoln, drawn up for the Board of Agriculture;" London, 1798, 8vo., 9s. "An enquiry on the propriety of applying wastes to the maintenance and support of the poor;" London, 1801, 8vo., 2s. 6d. "The farmer's kalendar, containing the business necessary to be performed on the various kinds of farms during every month of the year;" London, 1800-1813. "Essay on manures;" London, 1804, 8vo. "General view of the agriculture of Hertfordshire, drawn up for the Board of Agriculture;" London, 1804, 8vo., 12s. "General view of the agriculture of the county of Norfolk;" London, 1804, 8vo., 8s. "General view of the agriculture of the county of Essex;" London, 1806-7, 2 vols., 8vo., 12s. "General report on enclosures;" London, 1807-8, 8vo. "General view of the agriculture of Oxfordshire;" London, 1809, 8vo., 14s. "General view of the agriculture of the county of Sussex, drawn up for the Board of Agriculture;" London, 1809, 8vo., 14s. "Advantages which have resulted from the establishment of the Board of Agriculture;" London, 1809, 8vo., 9s. "On the husbandry of the celebrated British farmers, Messrs. Bakewell, Arbuthnot, and Duckett;" London, 1811, 4to., 5s. "Inquiry into the progressive value of money, as marked by the price of agricultural produce;" London, 1812, 8vo., 2s. 6d. "An essay on manures;" "Nicholson's Journal," vol. 18, pp. 120, 1809.

Arthur Young was a person of ardent temperament, and much vivacity of thought. His zeal, enterprize, and energy, were quite characteristic of himself, and his labour was untiring and assiduity indefatigable. He had a strong bias to calculation, which led him to a speculative policy on most points, and was much assisted by a very quick imagination. His services to agriculture were important, and the value would have been greater if he had confined himself to the sole object of agriculture, and avoided the political and party themes of which he was ever ready to be the champion and asserter. He carried this rampant feeling with him to the Board of Agriculture, by which he severed the claims of its utility, and ultimately effected its dissolution; he and its president working its ruin.

The writings of Young are very carelessly performed, and most unmethodically arranged. Letters, dates, signatures, compliments, and quotations, do not convey a meaning as it should be done in a concise essay, having a beginning, a middle, and an end—stating the purpose, the doing of it, and the application of the result. He projected nothing new or original, nor devised any different scheme of agriculture in any point; but he collected a huge mass of miscellaneous information, which had no small effect on the progress of agriculture. His ideas do not seem to have been very practically clear on any point. The vision was too hastily decisive, and the prospect dimmed by some crochetty opinion. It cannot be denied but that

he reflected lustre on the age and country in which he lived, and that he filled a large space in the public eye for a long series of years. He was much esteemed abroad, and had many presents sent him from the occupants of thrones, and pupils came to him from various nations to be instructed by his precept and example. In the private relations of life he has never been impeached—his individual worth has met no accusation, and his moral integrity has never been assailed. The strays of temperament are not very hurtful, and the times in which he lived must be charged with the political crochets of Young. His services sink the quibbles of party beneath an overwhelming load of the most meritorious deservings.

CXXVIII.—Dossie, 1767.

Robert Dossie, Esq., wrote "Memoirs of agriculture, and other economical arts;" London, 1767, 3 vols., 8vo., price 15s. The author seems to have been a scientific person, and published several works relating to chemistry. The book of memoirs is dedicated to the King, and the contents relate wholly to the rewards and premiums given by societies to the inventors of any design, or a success in manufacture. Much discussion was made on the comparative merits of the broadcast and drill-sowing of grains and root crops; the turnip-rooted cabbage and burnet were introduced, and colesced was extensively used. The culture of turnips, parsnips, and beans, is extensively agitated, and the drilling of lucerne. Ploughs and carts are brought forward, and the merits settled. The information is altogether contained in the form of letters, which do not bespeak the learned arrangement that is necessary. But much useful matter is found in the three volumes.

CXXIX.—Weston, 1767.

Richard Weston, Esq., of Kensington Gore, near London, was a literary person, but his chief attention was turned to agriculture and gardening. He wrote "Tracts on agriculture and gardening, with a chronological catalogue of English authors on agriculture and gardening;" London, 1767, 8vo. The notices of agriculture contain a list of manures, among which no new substance is mentioned. Various methods of feeding and fattening of fowls, geese, ducks, and turkeys; a method of suckling calves; and the improvement of barren lands by trees.

The catalogue of authors is very valuable, and affords a chief authority in the compilation of this biography. It extends to the year 1772. Weston published some works on gardening and planting, which are esteemed. No memorials remain of his individual station in society, or professional life.

CXXX.—Hunter, 1769.

Alexander Hunter, M.D., F.R.S., London and Edinburgh, was born at Edinburgh, in 1738; practised as a physician at Gainsborough, at Beverley, and finally at York, where he died in 1809. He wrote some professional tracts' and republished Evelyn's "Silva and Terra." He wrote "Outlines of agriculture, addressed to Sir John Sinclair, Bart., President of the Board of Agriculture;" York, 1795, 8vo., 5s. "A new method of raising wheat for a series of years on the same land;" York, 1796, 4to., 6s. "Georgical essays, in which the food of plants is particularly considered, several new composts recommended, and other important articles of husbandry explained upon the principles of vegetation (by a society instituted in the north of England, for the improvement of agriculture); London, 1769, 4 volumes, octavo.

"The method of raising wheat continuously on the same land" is not found in the libraries of the British Museum, and the ignorance remains how it was proposed to effect this yet to be attained purpose. "The outlines of agriculture" consist of 38 octavo pages, which are bound in a volume of tracts. The matter relates entirely to the principles of life both in the animal and vegetable world, and contains much scientific truth.

"The georgical essays" form two small octavo volumes, being four divisions bound into two books. The contents are:—

VOL. I.

Essay 1. On the rise and progress of agriculture.
2. On the nourishment of vegetables.
3. On a rich and cheap compost.
4. On vegetation, and the analogy between plants and animals.
5. On steeps.
6. On the roots of wheat.
7. On vegetation, and the motion of the sap.
8. On the oil compost.
9. On a new method of cultivating weak arable lands.

VOL. II.

Essay 1. On the study of nature.
2. On the rise and ascent of vapours.
3. On the Siberian barley.
4. On potatoes.
5. On turnips.
6. On a new kind of manure.
7. On carrots, and their use in fattening hogs.
8. On the time of sowing.
9. On the oil compost.

VOL. III.

Essay 1. On the connection between botany and agriculture.
2. On the nature and properties of marl.

3. On drill sowing.
4. On manures and their operation.
5. On top-dressings.
6. On the different qualities of rain which fall at different heights over the same spot of ground.

VOL. IV.

Essay 1. On the juice of carrots.
2. On the culture of potatoes.
3. On the analogy between plants and animals.
4. On experiments.
5. On the sexes of plants.
6. On a cheap and expeditious method of draining land.
7. On the orchis root.

These essays have ever engaged a very well deserved reputation, both with practical and scientific men. The subjects are concisely treated, and the language is neat and appropriate. Hunter with his essays, and Randall with his Semi-Virgilian husbandry, constitute a very large ascent in the progress of enlightened agriculture. The drill-husbandry was at that time coming into operation, and was warmly advocated by both writers, and even not unfairly understood by them. Every kind of learning was rapidly moving forward, and agriculture did not escape the propulsion.

CXXXI.—Peters, 1770.

Matthew Peters wrote "The national or rational farmer, a treatise on agriculture and tillage;" London, 1770, 8vo., price 2s. 6d. "Winter Riches, or a miscellany of rudiments, directions, and observations necessary for the laborious farmer, on a new vegetable system of agriculture;" London, 1771, 8vo., price 3s. 6d. Weston ascribes another book to Peters, called "De re rustica, or the repository;" 2 vols., price 12s.

None of the above-mentioned works is found in the libraries of the British Museum; but our research discovered "Agriculture, or the good husbandman;" by Matthew Peters, author of the "Rational farmer," and of "Winter riches."

This work has escaped the notice of all the lists of books and writers in the Bibliotheca Britannica, Weston and Loudon. The other writings of Peters' are the same in every list; only Weston gives one more than the other catalogues. The "Agriculture" is a thin octavo volume, of 195 pages, and is dedicated to the Duke of Leinster, as the author wrote in, or belonged, to Ireland. It treats politics, commercial subjects, enclosing of common grounds, heaths, chases, and forests; culture of potatoes, wheat, and barley; manures, natural and artificial; lucern, sainfoin, blights; depopulation and monopolizing; tillage and pasture; kinds of wheats and barleys. The matter is very heterogeneous and mixedly treated; but the author had possessed a large store of sound information on all practical matters. He is loud in the praise of turnips, and of the drill-culture. He was familiar with the potato, which had a warm approbation. Frequent references are made to the other works.—"Rational farmer," and "Winter riches," which causes a regret that they are not found. Our opinion places this author among the best writers of the time.

CXXXII.—Pennington, 1770.

W. Pennington, wrote "Reflections on the various advantages resulting from the draining, enclosing, and allotting of large commons, and common fields;" London, 1770, 8vo., 1s. The essay occupies 77 octavo pages, and argues very strongly the great advantages of enclosing all lands that are capable of cultivation, both for the purposes of tillage and pasture. It is a very useful tract on the subject.

CXXXIII.—Comber, 1771.

Thomas Comber, L.L.D., rector of Buckworth and Morborne, in the county of Huntingdon, died 1778, wrote "Real improvements in agriculture;" (on the principles of A. Young, Esq.), recommended to accompany improvements of the rents, in a letter to the aldermen of Huntingdon; to which is added a letter to Dr. Hunter, Physician, in York, concerning the rickets in sheep; London, 1771, 8vo., price 1s. 6d. The book contains 83 octavo pages, in which the author touches many points of practice, and suggests better modes of proceeding. He thinks oxen are vastly preferable to horses for farm work, as the animals live on coarser food, and the ruminant process makes any food of whatever quality to be good nutrition. This book added little to agricultural progression.

CXXXIV.—Millar, 1772.

Francis Millar wrote "The husbandman's directory;" 1772, 12mo., price 2s. The Bibliotheca Britannica makes this statement, but the author or the book are not noticed in any other list of authors, or books on agricultural subjects. The names are placed here on the above authority.

CXXXV.—Jacob, 1773.

Joseph Jacob wrote "Observations on the structure and draught of wheel carriages;" London, 1773, 4to., price 6s. "Animadversions on the use of broad wheels, and the preservation of the public roads;" London, 1774, 4to., price 1s. 6d. Only the first-mentioned book is found in the libraries of the British Museum; it is a thin quarto of 90 pages, in 4 parts—of the draught of carriages in general; of the structure and draught of wheel carriages in particular; of the construction of various carriages for different purposes; of some improvements that

are or might be made in the structure of wheel carriages. Illustrations are given, but no very particularly valuable demonstration is contained in the book.

CXXXVI.—Varlo, 1774.

C. Varlo, Esq., wrote "A new system of husbandry;" London, 1774, 3 vols., 8vo., price 15s. This is the fourth edition, the three former having been chiefly sold by subscription, and by the author and his agents. "Schemes offered to the perusal and consideration of the legislature, freeholders, and the public in general;" London 1775, 8vo., price 3s. A mass of very sound and useful information is contained in the "System of husbandry," but is most confusedly arranged and very mixedly detailed. Potatoes and turnips were now well known, drilled, and the latter consumed on the ground. On manures nothing new is added; but the directions for the application of the substances are very enlightened and soundly practical. The author had possessed large acquirements on the matters of husbandry, but lost much of the value from the want of a systematic treatment.

CXXXVII.—Kent, 1774.

Nathaniel Kent, of Fulham, Middlesex, wrote "Hints to gentlemen of landed property;" London, 1774, 8vo., price 5s. "General view of the agriculture of the county of Norfolk, with observations on the means of its improvement; drawn up for the Board of Agriculture and internal improvement, with additional remarks from several respectable gentlemen and farmers, &c." Norwich, 1796, 8vo, price 5s. "Accounts of the improvements made on the farm in the Great Park of His Majesty the King, at Windsor." Nicholson's Journal, III., 428, 1799.

The Norfolk survey has always been reckoned one of the best that issued from the Board of Agriculture, being very comprehensive, and justly and acutely remarked. The hints on landed property form a book of 286 octavo pages, and discusses in a very neat manner the general routine of farming as then performed, with many valuable suggestions of future practice. The author puts a heavy value on labourers' cottages, and gives designs of dwellings that have not been exceeded in the present times. His hints to landed proprietors are valuable, to grant equitable leases of land, in order that the soil may become useful to others as well as to themselves, and diffuse as much good to society as possible. On the subject of game, the author advises lenity, forbearance, and confidence; the farmers are the best guardians of it, and will do the duty much better than any gamekeeper. This author must have been a very enlightened person.

CXXXVIII.—Ringsted, 1774.

Josiah Ringsted, Esq, wrote "The cattle keepers' assistant; or genuine directions for country gentlemen, sportsmen, farmers, graziers, &c.," London, 1774, 8vo., 1s. 6d. "The Farmer," comprehending the most interesting objects, beneficial practices in the culture of wheat, rye, barley, oats, buckwheat, &c.; London, 1796, 8vo., price 2s. 6d. These names are not found in the national library: our authority comes from the Bibliotheca Britannica alone.

CXXXIX.—Anderson, 1775.

James Anderson, LL.D., was born at Hermiston, a village near Edinburgh, in 1739, of very respectable parents, where his ancestors had long held a farm in that locality. His education was chiefly the result of his own exertions. He lost his father when he was only fifteen years old, and he managed the farm at that early time of life. After making every study within his reach, he removed to Aberdeen shire, where for twenty years he managed a hitherto uncultivated tract of ground in 1300 acres, which he subsequently let for a life annuity. He removed to Edinburgh, projected the North British Fisheries, and was employed by government to survey the coast of Scotland. He commenced "The Bee" a periodical that was ably supported, but fell by reason of political intermeddlings. The author removed to London in 1797, and led a very domesticated life, chiefly employed in writing and gardening, till he died in 1808.

The works of Anderson are many—the agricultural ones are as follow: "Essays relating to agriculture and rural affairs;" Edinburgh, 1775, 8vo.; 1777, 8vo.; London, 1776, 3 vols., 8vo.; London, 1800, 3 vols., 8vo. "Miscellaneous thoughts on planting and training timber trees, by Agricola;" Edinburgh, 1777, 8vo. "An enquiry into the causes that have hitherto retarded the advancement of agriculture in Europe, with hints for removing the circumstances that have chiefly obstructed its progress;" Edinburgh, 1779, 4to., price 3s. "An account of the present state of the Hebrides, and Western coasts of Scotland, with hints for encouraging the fisheries, and promoting other improvements in these countries; being the substance of a report to the Lords of the Treasury;" Edinburgh, 1785, 8vo., illustrated with a geographical map. "A practical treatise on peat moss, considered in its natural state, fitted for affording fuel, or as susceptible of being converted into mould capable of yielding abundant crops of useful produce, with full directions for converting and cultivating it as a soil;" Edinburgh, 1794, 8vo., price 4s. "A general view of the agricultural and rural economy of the county of Aberdeen, with observations on the means of its improvement; chiefly drawn up for the Board of Agriculture," in two parts; Edinburgh, 1794, 8vo. "A practical treatise

on draining bogs and swampy grounds with cursory remarks on the originality of Elkington's mode of draining;" London, 1798, 8vo., price 6s. "Recreations in agriculture, natural history, arts, and miscellaneous literature;" London 1799-1820, 6 vols., 8vo, price £3 7s. "A description of a patent hothouse, which operates chiefly by the heat of the sun, and other subjects, without the aid of flues, or tan bark, or steam, for the purpose of heating it;" London, 1804, 12mo., price 4s. 6d.

The Recreations in agriculture and arts occupy six stout octavo volumes, to which the introduction is a most rationally systematic arrangement of the several objects that must engage the agricultural enquiry; as vegetation in general, soils, impoverishing matters, manures, obstructions to agriculture, operations by art, by nature, extirpation of weeds, inclosures, fences, implements, disquisitions on vegetables, on animals, cultivation of crops, orchards, fruits, timber trees, live stock, considerations on the different kinds, on the general management of an arable farm, of a grass farm, of an unimproved farm, general disquisitions on the management of land, on farm buildings, on fuel, on accidents, diseases of crops, of animals, on the weather, on the obstacles to agriculture, its claim as an object of taste and recreation.

The varieties of sheep have a long discussion, and also Gothic architecture, with the various kinds of cattle and the dairy. The construction of carts is not forgotten, with the waggon, and the harness for the farm horse. The culture of potatoes, and the best kinds of them, are much required, and various experiments recorded. A most excellent article appears in vol. 6, on the management of clay soils. Tithes, and the migration of the herring, are largely considered. In these volumes, scientific, practical, and literary matters are most agreeably blended, and form a truly rational "recreation."

"The survey of the county of Aberdeen" is a volume of 181 octavo pages, describing the county in its rivers, mountains, soil, agriculture, and manufactures. The author everywhere exhibits a correct knowledge, along with temperate observations.

"The enquiry of obstacles to agriculture" occupies 72 quarto pages; attributing the chief impediment to be the want of attention to the particular subject, and to the want of a Georgical Society with a monthly journal. The arguments are very just, and cogently applied.

"The essay on peat moss" is an octavo volume of 233 octavo pages, describing moss as fuel, and when converted into mould. The reasoning is ingenious; but all disquisitions on moss, where it exists in the purest condition, end in knowing that the substance is useless for cultivation, and the climates under which mosses lie, render wholly abortive every attempt of alteration. The case is very different with mossy earths, or moorish soils, which freely admit cultivation.

"The account of the Hebrides, or the western islands of Scotland," forms a thick volume of 452 octavo pages, wherein are contained much sound sense, and very plausible suggestions. But, as in the case of peat moss, the natural circumstances of soil and climate will baffle all the exertions of human intellect; and recent trials have proved the inefficacy of the most benevolent intentions, and the power of expenditure. The uprise of such countries must be slow, very gradual, and in a strict ratio with circumstances.

"The treatise on draining bogs" fills 308 octavo pages, showing very much enlightened judgment on the part of the author, though he might at once have seen the fallacy of Mr. Elkington's mode of draining, except in some few peculiar cases.

The writings of James Anderson everywhere exhibit a mind of no common calibre, that was able to enjoy the refinements of science without allowing its deductions to overheat the fancy and betray the judgment, leading astray the intellect from the sober maxims of practical truth. He enjoyed the beaming lights of science, but never in one instance allowed its dazzle to dim the vision of operative knowledge. A singular exception was formed by his character on this point; either the scientific man leaves the roads of practice, and loses himself among untrodden pathways; or the practitioner will walk only upon the old beaten tracks, and finds no new roads that lead to eminence and advantage. Our author did neither, but choosing and being able to grasp the happy medium, he gratified himself, and enlightened the world with lucubrations that comprehended both kinds of knowledge, and thus explored a fountain that flows an everlasting issue of benefit to the human race.

Anderson's views of commercial regulations and social policy were most liberal and enlightened, and would have stamped his name with excellence in any age or nation which had given him birth. His ideas on these points form an era of very great advancement in agricultural progress.

CXL.—Donaldson, 1775.

William Donaldson, Esq., acted for some time as secretary to the government of Jamaica, and wrote "Agriculture considered as a moral and political duty, in a series of letters inscribed to his Majesty;" 1775, 8vo., price 3s. 6d. The book is a thin octavo of 202 pages, and places agriculture as the first temporal idea that possessed the human mind, and that the study of it was prosecuted in the university of nature. The earth was the first

: volume which was unfolded by nature for ercise of the human mind, from which have g all the blessings of this world. The au- eprobates large farms, either arable or graz- nd discourages the enclosing of commons; i giving farmers any political influence, and s a legislative enactment that oxen perform e labours of cultivation, and that horses be oned. The letters are wholly retrospective gumentative, and bring forward no new plan nprehension, or make any suggestion of im- ce.

CXLI.—Barron, 1775.

liam Barron, F.R.S.E., was Professor of and Belles Letters, in the university of St. w's, Scotland. He wrote "Essays on the nical principles of the plough;" Edinburgh, 8vo. This book is not found in the libraries British Museum, and the name is here en- on the authority of the Bibliotheca Britan- nd Loudon's list of authors. The logical of the author are found in the Museum.

CXLII.—Harrison, 1775.

tavus Harrison, Esq., wrote "Agriculture ited, or the farmer's complete guide;" being ise on lands in general; London, 1775. 8vo., s. The name of the author or the book is not in the libraries of the British Museum, and e of them in this place rests on the authority Bibliotheca Britannica, and Loudon's list of s. Weston has ceased to aid our enquiry, catalogue ended in 1772.

CXLIII.—Home, 1775.

ry Home, Lord Kames, among the Judicial of Scotland, an eminent lawyer, philoso- nd critic, was born at Kames, in Berwick- 1696. He was descended from an ancient nourable family, the ancestors of which had from the family of the Earls of Home. thor was early bred to the law, and had little atrimony on which to depend. His activity, y, and exertions were called into action at ly period of life, to which circumstance he terwards attributed the eminence which he l. His initiatory education was derived domestic tutor.

le's ambition quickly led him to look above rior station of his profession, and he studied) qualify himself for the highest standing. rsuit embraced the natural sciences, logic, and metaphysics, of which last branch he very proficient. He was called to the bar , but not shining in oratory, he did not en- nch practice as a pleader. The first speci- om his pen quickly procured a reputation, nlarged his practice and stamped his name as a profound and scientific lawyer. He enjoyed the friendship, and held the correspondence of the leading characters of the day. In 1752, he was appointed a Lord of Justice, and took the title of his native place, and in 1763 he was one of the judges of the Supreme Criminal Tribunal, in Scotland. In town he was an active and industrious lawyer and judge; in the country he was a judicious and scientific farmer on the paternal estate, which came into his hands in a very ruined and unproductive condition. He wrote and published largely.

In 1766 he received an inheritance by his wife, in the estate of Blair Drummond, which furnished him with ample means of displaying his taste and skill in devising and executing improvements on lands and pleasure grounds. His ideas were that "in points of morality, the people upon landed estates are trusted by Providence to the owner's care, and that the proprietor is accountable for the management of them to the Great God, who is the creator of both." He published an essay on flax husbandry, and took an active part in all country undertakings. In pursuance of the patriotic wish to improve the agriculture of his country, he published, in 1776, "The gentleman farmer," written when he was eighty years of age. His physical strength now declined, but the mental powers showed no sensible decay; he gradually sunk to his death in 1782, in the eighty-seventh year of his age.

The literary merits of Lord Kames have enjoyed a large approbation, though not without the usual share of controversy. His agricultural work is an octavo volume of 435 pages, in two parts; the first part, in 14 chapters, treating on—

Chap. I. Instruments of husbandry: 1. The plough. 2. The brake or drag-harrow. 3. The harrow. 4. The roller. 5. The fanner.

Chap. II. Farm cattle and carriages: 1. Farm-horses. 2. Farm oxen. 3. Breeding horses and horned cattle. 4. Wheel-carriages.

Chap. III. Farm offices.

Chap. IV. Preparing land for cropping: 1. Obstructions to cropping. 2. Bringing into culture barren lands. 3. Forming ridges. 4. Clearing ground of weeds.

Chap. V. Culture of plants for food: Sect. 1. Plants cultivated for fruit.—1. Wheat and rye; 2. Oats; 3. Barley; 4. Beans; 5. Peas. Sect. 2. Plants cultivated for roots—1. Turnips; 2. Potatoes; 3. Carrots and parsnips. Sect. 3. Plants cultivated for leaves.

Chap. VI. Culture of grass.

Chap. VII. Rotation of crops.

Chap. VIII. Reaping hay and corn crops, and storing them up for use.

Chap. IX. Feeding farm cattle: 1. Green

food. 2. Dry food. 3. Feeding for the butcher. 4. The store cattle. 5. Rules for buying and selling cattle and corn.

CHAP. X. Culture of other plants of a farm: Sect. 1. Forest trees—1. Trees from seed; 2. Cuttings, layers, and suckers; 3. Soil proper for trees; 4. Climate; 5. Time of planting; 6. Manner of planting; 7. Pruning; 8. Wood proper for the instruments of husbandry. Sect. 2. Flax. Sect. 3. Hops.

CHAP. XI. Manures.

CHAP. XII. Fences.

CHAP. XIII. The proper size of a farm, and the useful accommodations it ought to have.

CHAP. XIV. What a corn farm ought to yield in rent.

PART II.

CHAP. I. Preliminary observations. 1. Elective attraction and repulsion. 2. Faculty of plants in accommodation. 3. Change of food and of species.

CHAP. II. Food of plants and fertility of soil.

CHAP. III. Means of fertilizing soils. 1. Ploughing. 2. Manures.

APPENDIX.

Art. 1. Imperfections of Scotch farming. 2. A board for improving agriculture. 3. General lease for a corn farm. 4. Plants and animals compared. 5. Propagation of plants.

Lord Kames had attained a practical knowledge of agriculture very much beyond the acquisition which his social position could be expected to afford. He advocates the lease of land to be not under twenty years in duration; and as kings are fettered in the exercise of power, so farmers must be confined in their use of the soil; but in an easy way, not compulsory, but hindering to do some few things of evident damage to the land, of easy compliance on the part of the farmer, and to his own individual advantage. His ideas on this vital point are most enlightened and dignified. On manures the notice is short, being confined to farm-yard dung, lime, and marls. He avoids any disquisition on the nature of lime, or its action on the soil; but advises it be used in a hot pulverized condition, and intimately mixed with the land in a finely comminuted state. The notice of farm buildings is short, and offers little to be told: fences are similarly treated. The plough and harrow of Scotland are delineated in nearly the same form as now used; a chain is fixed below the beam, forming the chain ploughs of that country, which are yet adopted. The author argues strongly in favour of oxen over horses in farm work, and wondered at the blindness of men who were unable to see the advantage, and that horses were daily superseding the ox. The reader wonders more that his largely comprehensive mind and strong sagacity of judgment were unable to see that nature, in the muscular formation of the two animals, has incontestibly decided the preference of the horse for farming purposes, and that the growing adoption of the animal over the ox proceeded from the most convincing proofs of superiority. Such is the force of pre-conceived opinions over the strongest exertions of human intellect: the author saw the advantage of leases, but failed with respect of the quick horse and the sluggish ox. The book, however, possesses much merit, and shows a large progress being made on agricultural subjects. In our opinion, Lord Kames was behind James Anderson both in the views of social policy, and regarding the connection of agriculture with other branches of physical learning.

CXLIV.—A FARMER, 1775.

This author wrote "Essays relating to Agriculture and rural affairs," in two parts, illustrated with copperplates; Edinburgh, 1775, 8vo. This work is in five essays, which form a volume of 472 octavo pages of much variety of matter: as, enclosures and fences; embanking rivers; draining bogs; sowing grass seeds; pastures; fattening of animals; food of beasts; grasses and legumes. The essays were written by the persuasion of Dr. John Gregory of Edinburgh, and were finished after his decease; a varied knowledge is shown, but no practical advancement was promoted.

CXLV.—THE SCOTS FARMER, 1775.

This name wrote "Select essays on agriculture, adapted to the soil and climate of Scotland;" Edinburgh, 2 vols., 8vo., 1775. This work comprises two octavo volumes of above 600 pages each, and comprehends a very large mass of most useful matter. Almost every farming subject is treated and elucidated, and a very sound practical opinion is subjoined to every discussion. The arrangement might have been more commodious, and the form of letters omitted, which always defaces essayistical matters. The preface and dedication being none, the author's position in society is unknown beyond the above designation.

CXLVI.—HALES, 1775.

Hales wrote "Complete body of husbandry, containing rules for performing in the most profitable manner, the whole business of the farmer and the country gentleman;" 4 vols., price £1 1s. This work was advertised by John Bell, Edinburgh, who published the work of Lord Kames; but no other notice of the book can be found. The most probable author would seem to be "Dr. Hales," a celebrated person in physiology and natural history, who lived over the time of the advertisement of the work; but

the Bibliotheca Britannica does not contain a book of that title among the works of that author. The libraries of the British Museum do not possess any book of that title, and Loudon's catalogue mentions no author of that name. Some two or three anonymous tracts on agriculture have intentionally slipped our notice; but no work is omitted that has an author's name attached, and the authority is always given, whence the notice is derived.

CXLVII.—Clarke, 1775.

Cuthbert Clarke, lecturer in experimental philosophy, wrote "The true theory and practice of husbandry, deduced from philosophical researches and experience." To which is added "A compendium of mechanics;" illustrated with plates, London, 1775, 4to., price 10s. 6d. The author published a book on weights and measures, which was of repute at the time.

The dedication of the book on husbandry is dated from Durham, and addressed to the proprietors and occupiers of land. The intention is avowed to resolve the hitherto varied art of husbandry into a science, and to do so with propriety and clearness. The first section of the theory of agriculture very curiously introduces into the middle of it the form of cash accounts in ledger and general receipt books. Then follow the forms of receipts, bills, and the promissory notes, and common bills of parcel. The curvilinear shape of ploughed ridges of land are very correctly delineated, and the position of the furrow slices is very exact. A general conversation is managed between two speakers, "Philosophus and Agricola," who discuss the common topics of farming in an enlightened manner. A form of a lease is given, along with the expenditure and receipts on an arable farm of 300 acres. The second part of the work, on mechanics, delineates some forms of ploughs; but nothing new, or very worthy of notice. The Rotherham plough is shown with straight handles.

CXLVIII.—Ellis, 1776.

John Ellis, F.R.S., an eminent naturalist, was born in London about the year 1710; died in 1771. He wrote "A treatise on cattle," showing the most approved method of breeding, rearing, and fitting for use horses, asses, mules, horned cattle, sheep, goats, and swine; London, 1776, 8vo., price 6s. This work is not found in the National Library along with other works of the author, who wrote largely on natural history. The Bibliotheca Britannica makes the general statement.

CXLIX.—Marshall, 1778.

William Marshall was a native of Yorkshire, and brought up to trade: the year of his birth has not been stated. He was some years in the West Indies as a planter, and returned in 1775, when he took a farm in Surrey. In 1780, he was agent in Norfolk, on the landed estate of Sir Harbord Harbord, which employment he resigned in 1784, and settled at Stafford, busily occupied in arranging and printing the works he had long been preparing. From this time, or from 1786 to 1808, he resided mostly in Clement's Inn, London, during the winters, and travelled during the summers in different parts of the country. He finally retired, in 1808, to his native vale of Cleveland in Yorkshire, where he purchased a large estate, and died there in 1819, at a very advanced age.

The works of Marshall are as follow:—"Minutes of agriculture, made on a farm of 300 acres of various soils, near Croydon, Surrey." To which is added, a digest, wherein the minutes are systemized and amplified, and elucidated by drawings of new implements, farm-yard, &c. The whole being published as the sketch of the actual business of a farm, as hints to the experienced agriculturist, as a check to the present false spirit of farming, and as an overture to scientific agriculture; London, 1778, 4to., price 12s. "Experiments and observations concerning agriculture and the weather;" London, 1778, 4to., price 7s. 6d. "The rural economy of Norfolk, comprising the management of landed estates, and the present practice of husbandry in that county;" London, 1788, 2 vols., 8vo., price 12s. "The rural economy of Gloucestershire, including its dairy; together with the dairy management of North Wiltshire, and the management of the orchards and fruit liquors in Herefordshire and Gloucestershire;" Gloucester, 1789, 2 vols., 8vo., price 12s. "Rural economy of the Midland counties, including the management of live stock in Leicester and its environs; together with minutes on agriculture and planting in the district of the Midland section;" London, 1790, 2 vols., 8vo., price 14s. "A review of the landscape, a didactic poem: and also an essay on the picturesque, together with practical remarks on rural ornament;" London, 1793, 8vo., price 5s. "Rural economy of the west of England, including Devonshire, parts of Somersetshire, Dorsetshire, and Cornwall;" London, 1796, 2 vols., 8vo., price 12s. "A practical treatise on planting and ornamental gardening;" 8vo. "Planting and rural ornament," being a second edition of the preceding work, with large additions; London, 1796, 2 vols. 8vo. Third edition improved 1808. "The rural economy of the southern counties of England, comprehending Kent, Surrey, Sussex, the Isle of Wight, the chalk hills of Wiltshire, Hampshire, &c., and including the culture and management of hops in the district of Maidstone, Canterbury, and Farnham;" London, 1796, 2 vols., 8vo., price 12s. To a second edition

in 1798, was added "A sketch of the vale of London, and an outline of the rural economy, proposals for a rural institute or college of agriculture, and other branches of rural economy;" London, 1798, 8vo., price 1s. 6d. "On the appropriation and enclosure of commonable and intermixed lands, with heads of a bill for the purpose; together with remarks on the outline of a bill by a committee of the House of Lords for the same purpose;" London, 1801, 8vo., price 2s. 6d. "An elementary and practical treatise on the landed property of England, containing the purchase and improvement of landed estates;" London, 1806, 4to., price 42s. "Treatise on the management of landed estates"—a general work for the use of professional men, being an abridgment of the former; London, 1806, 8vo., price 10s. 6d. "A review of the reports of the Board of Agriculture from the northern departments of England;" London, 1808, 8vo., price 12s. "A review of the reports of the Board of Agriculture from the western dapartments of England;" London, 1809, 8vo., price 12s. "A review of the reports of the Board of Agriculture, from the eastern departments of England;" London, 1812, 8vo., price 12s. "Review and complete abstract of the reports to the Board of Agriculture from the midland departments of England;" London, 1815, 8vo. "A review and complete abstract of the reports to the Board of Agriculture from the southern and peninsular departments of England;" 1817, price 19s. "A review and complete abstract of the reports to the Board of Agriculture from the several departments of England;" 1817, 5 vols., 8vo., price 60s. "Of the black canker caterpillar, which destroys the turnips in Norfolk;" Phil., Trans., Lib. XV, 386, 1783.

William Marshall had but little education, of which the want was supplied by a mind of no common strength and energy. He adhered to purpose with an invincible obstinacy, and an imperturbable steadiness; nothing could divert him from the plan which he originally laid down, that of collecting and condensing the agricultural practice of the different counties of England, with a general work on landed property; another on "Agriculture," which he did not live to complete, and a rural institute. The boards and societies which have succeeded do not realize the latter idea. It has yet to be done.

The writings of Marshall are very valuable, and as an author he must be preferred to Arthur Young. The matter is better arranged, and his practical knowledge was more correct: condensation was his object, as the want of it scattered the materials of Young. It is quite true, that compression is more powerful than expansion, and that condensation is desirable; but to abridge everything requires that an author sees everything, which is an attainment probably far removed from human reach. A certain degree of expansion is required in order to convey the meaning in the full force: if it be too diffused, it loses power; and if too confined, the opportunity of action is not conferred. Both Young and Marshall were inferior to James Anderson in the comprehensive grasp of the subject, which caught the essence, and let go the grossness, and looked at the object from a point of view that was divested of the crotchets and adventitious appurtenances which perplex and encumber almost every mind that attempts to delineate any practical application.

As a rational observer and practical compiler Marshall was most decidedly superior to Young.

The georgical element of the human race was very strong in Marshall, and it had a more correct development with him than was manifested by Tull or Young, or by any agriculturist that had preceded him. Almost every human being dirties his fingers with the soil in some shape or form; if the hand does not actually touch the soil, the eye observes, the mind ruminates, and the pen is used to communicate the ideas that arise on the use of the ground. Almost no profession has debarred its votaries from giving aid to agriculture: the lawyer has doffed his wig, the clergyman has laid aside his gown, and the sons of medicine have neglected the jar and the pestle, in order to contribute a mite to farther the good cause. And agriculture has been much indebted to their efforts.

CL.—Forbes, 1778.

Francis Forbes, Gent, wrote "The extensive practice of the new husbandry exemplified on various sorts of land for a course of years; and the importance of that husbandry to Britain, shown from long experience of several eminent husbandmen;" London, 1778, 8vo., price 9s. "The improvement of waste lands; viz., wet moory lands; land near rivers and running waters; peat land; and propagating oak and growing timber upon neglected and waste lands; London, 1778, 8vo., price 9s.

Only the last mentioned work is found in the library of the British Museum. It is an octavo volume 210 pages, and is mostly composed of speculative projects, as canals, plantations of oaks and osiers, the cultivation of hemp, and other exotic ideas. The practical part is nothing. The author seems to have been a small landed proprietor.

CLI.—Wight, 1778.

Andrew Wight wrote "The present state of the husbandry in Scotland;" Edinburgh, 1778, 1790, 6 vols., 8vo. This work is formed from reports made to the commissioners of annexed estates, who were appointed to observe and report the progress of improvements on the allotted grounds. The author had compiled the work, or had travelled as an in-

spector; his name is not attached to the book itself, but has the title in every catalogue and library. The contents are valuable, and contain a mass of most useful information. Threshing machines were then used.

CLII.—Black, 1778.

James Black, of Mardon, Surrey, wrote "Observations on the tillage of the earth, and on the theory of instruments adapted to this end;" London, 1778, 8vo., price 5s. The name of this author is not otherwise known. The book is a thin quarto of 40 pages, treating on ploughs, exhausting crops, soils, labouring cattle, and cultivation of waste lands. A long dissertation on the relative advantages of horses and oxen as beasts of draught, the prime cost and maintenance of each animal, is hardly able to establish the ox as superior to the horse, which seems to be the object of the calculation. The sketches of implements are little worth.

CLIII.—Boswell, 1780.

George Boswell, a landed proprietor of Gloucestershire, wrote "Treatise on watering meadows, wherein are shown the many advantages arising from that mode of practice, particularly on coarse, boggy, or barren lands;" with four copperplates. London, 1780, 1793, 8vo., price 2s. 6d. The book is a thin octavo of 108 pages, with a dedication to the Earl of Ilchester, dated Piddletown, Dorset, March 25, 1779. The chapters are fourteen:—I. On land capable of being flooded. II. An explanation of the terms, principles, and instruments, used in watering meadows. III. General description of water meadows. IV. A meadow watered regularly from a stream running through it. V. A meadow irregularly watered, the stream passing by the side of it. VI. A meadow watered by a head main taken out of the river a considerable distance above it. VII. Planning a meadow of eight acres, an actual survey. VIII. The execution, or manual part of the work. IX. Description of wares and sluices. X. The various erections in water meadows. XI. Land floods. XII. Repairing the works. XIII. Watering the meadows. XIV. Haymaking.

The plates show the watering of meadows in regular ridges, and also in irregular formations of ground, where the canals of water are guided by the inequalities. The essay possesses much merit, and has not been surpassed by the usage of the present time.

CLIV.—Trussler, 1780.

Rev. John Trussler, LL.D. of Cobham, Surrey, a singular literary character and compiler, was born in London, 1735; died in 1815. He wrote largely on history, chronology, law, romances, and humourous subjects. He published on gardening, and also "Practical husbandry, or the art of farming with a certainty of gain, as practised by judicious farmers in this country, the result of experience and long observation." In this work is contained all the knowledge necessary in the plain business of farming, unincumbered with theory, speculation, or experimental enquiry; also a number of estimates of the expenses and profits of different crops in the common way, taken from minutes kept; and a variety of useful remarks, not to be met with in any books of agriculture, together with directions for measuring timber.

The above statement is the title-page of an octavo book of 160 pages, which is bound with other short works on agriculture. In 21 chapters, there are mentioned, soils, the team, wheat, barley, oats, buckwheat, beans, peas, tares, turnips, clover, course of crops, profits of an arable and grass farm, ploughing and harrowing, weeding, hedging and ditching, threshing, manuring, miscellaneous observations, price of labour, on measuring timber.

The net profit of an acre of wheat is stated to be £2 10s., and the produce of the grain at 2¼ quarters; barley yields 4 quarters, and the profit is £3 3s. 6d.; oats produce 4 quarters, and the profit is £1 19s. 10d.; the produce of buckwheat is the same, and the profit is £2 19s. 1d.; beans yield 3¼ quarters, and the profit is £1 13s.; peas yield 3 quarters, and the profit is £1 8s.; tares yield yield 2 quarters, and the profit is 11s. 4d.; and from a crop of hay £1 9s 6d. A ton of turnips is valued at about 30s.; an acre of clover is worth 35s., when fed with swine at £11 9s. 6d., by hurdling £6 6s. 10d.; an acre of hay £1 7s. 9d. The course of crops is not scientific in having oats after wheat, and turnip fallow after the smothering crop of peas. A farm of 150 acres leaves a profit of £379, and an acre of meadow about £1 11s. The cost of threshing grains differs a little from the present prices.

The list of manures gives no addition of any notable substance. Meadows are advised to be mown and grazed alternately; an acre of turnips will winter eight sheep, and 2¼ acres of grass. A long list is given of the prices of job work, and of daily labour.

This short treatise shows a very correct practical knowledge, and much sober sense. The calculations are just, and founded on experience; no animals are mentioned.

CLV.—Halyburton, 1782.

William Halyburton, D.D., wrote "Georgics," in a series of letters to a friend; Edinburgh, 1782, 8vo, price 6s. This notice is taken from the Bibliotheca Britannica, in which alone the name of the author is found. It is therefore not known if the book was in prose or poetry, if it related to the works of cultivation of land, or to other georgical performances.

CLVI.—Raley, 1782.

William Raley, student in physic and botany, in Barmby upon the Moor, near Pocklington, Yorkshire, wrote "A treatise on the management of potatoes, or a new method of preventing and removing the disorders thereof, called curled tops; with remarks on the usual treatment and application of potatoes;" London, 1782, 8vo., price 3s.

This essay occupies 43 octavo pages, and attributes the curl top to several causes:—as, low damp grounds; want of change of seed; too often planting on one place; and to the sets being too small. This treatise was followed by an essay on the right management of potatoes, which differs little from the previous work. The author recommends various preventives, which deserves notice.

CLVII.—Twamley, 1784.

Josiah Twamley wrote "Dairying exemplified;" or the business of cheesemaking laid down from approved rules, collected from the most experienced dairywomen of several counties, digested under various heads; from a series of observations, during thirty years' practice in the cheese trade. With the most approved mode of making butter, and a dissertation on pine-apples: Warwick, 1784, 8vo, 2s. The book occupies 142 octavo pages in one continued essay, without chapters or divisions. There is shown very much sound knowledge of the subject, and many judicious suggestions.

CLVIII.—Turner, 1784.

Mr. Nicholas Turner, of Bignor, Sussex, wrote "An essay on draining and improving peat bogs, in which their nature and properties are considered;" London, 1784, 8vo., price 5s. The book is an octavo of 86 pages, discussing the origin of peat, its nature, and qualities in different situations. The expense of improvements is stated, the value of the returned crops, and the profits. It appears the author had never seen any true moss, but only reckoned upon mossy earths, and borrowed many statements from doubtful authorities. But his views are clearly stated, and very justly expressed.

CLIX.—Cooke, 1784.

James Cooke, inventor of a new drill machine, wrote "Drill husbandry perfected;" 1784, 12mo. This book is not found in the libraries of the British Museum, and the author is not placed in Loudon's list of authors. The above notice is taken from the Bibliotheca Britannica, which is the sole authority for the insertion of the name. But it occurs to our memory that the work had been seen by ourselves, though nothing more can be recollected of it.

CLX.—Small, 1784.

James Small wrote "Treatise on ploughs and wheel carriages;" Edinburgh, 1784, 8vo. He held a small farm in Roxburghshire, whence he removed to the vicinity of Edinburgh, and became a noted machinist. He made great improvements on the Rotherham plough, and the mouldboard which he devised and attached has not been much altered in that country, and is yet known by his name.

The libraries of the British Museum do not possess Small's treatise; but Loudon's list of authors joins with the Bibliotheca Britannica, in giving the above statement of the author and the book.

CLXI.—Stone, 1785.

Thomas Stone was a land surveyor in Gray's Inn, London, and land agent to the Duke of Bedford; died at Paris in 1815. He wrote "An essay on agriculture, with a view to inform gentlemen of landed property whether their estates are managed to the greatest advantage;" London, 1785, 8vo., 6s. "Suggestions for rendering the inclosure of common fields and waste lands a source of population and riches;" London, 1787, 8vo., price 1s. 6d. "General view of the agriculture of the county of Huntingdon;" London, 1793, 4to. "General view of the agriculture of the county of Bedford;" London, 1794, 4to. "General view of the agriculture of the county of Lincoln;" London, 1794, 4to. "A review of the corrected agricultural survey of Lincolnshire, by Arthur Young Esq.; with an address to the Board of Agriculture, and a letter to its Secretary; and remarks on the recent publication of John Lord Somerville, on the subject of inclosures;" London, 1800, 8vo., price 8s. "A letter on the drainage of the east, west, and wild moor fens, addressed to the proprietors of marshes in Lincolnshire;" London, 1800, 8vo., price 1s. "Letter on the intended drainings and inclosures of the moor fens in the county of Lincoln;" 1800.

The essay on agriculture, which was probably the most valuable of Stone's professional works, does not appear in the libraries of the British Museum, nor do the letters on draining of the fens. The three county surveys are short statements of the farming, followed with suggestions for its improvement. The survey of Lincoln fills 105 pages of quarto size. The suggestions on inclosures fills 86 octavo pages, which argue strongly in favour of enclosing, and confute the opposite statements in detail. Stone had been a person of a rational attainment, and very sound judgment. Though he had never practised farming, his views are very enlightened, and deductions correct.

CLXII.—Young, 1786.

David Young, of Perth, wrote "National improvements in agriculture;" in 27 essays, Edinburgh, 1786, 8vo., price 5s. "Agriculture the primary interest of Britain;" Edinburgh, 1788, 8vo., price 6s. This statement appears in the Bibliotheca

annica, and Loudon's list of authors quotes irst work, and omits the second. The libraries ie British Museum do not possess a book or or of the name.

CLXIII.—Culley, 1786.

orge Culley wrote "Observations on live stock, aining hints for choosing and improving the breeds of the most useful kinds of domestic als;" London, 1786, 8vo., price 3s. "General of the agriculture of Northumberland;" along J. Bailey. The name of Culley in three bro- emigrated from the county of Durham into humberland, and rented the farm of Fenton, Wooler, in 1767. By introducing the improved ster sheep, and adopting the drill cultivation rnips on these very favourable soils, and pro- is climate, their fortune was rapidly extended; order farm of Wark was long the scene of their tions, which ended in amassing a patrimony ided estates to their posterity. Much activity energy were displayed by the Culleys, which r less favourable circumstances might not been so successful; but still great merit is due e name, which yet exists in that county. The se on live stock has ever been very justly es- d, and the county survey shows an enlightened : George Culley died in 1813, aged 79.

CLXIV.—Winter, 1787.

orge Winter, a practical agriculturist, wrote ew and compendious system of husbandry; ining the mechanical, chemical, and philoso- l elements of agriculture;" Bristol, 1787, 1797, price 9s. The author was member of several d societies, and writes the dedication of his to the Duke of Beaufort from Charlton, Glou- shire. The work is an octavo volume of 349 in 12 chapters on properties of different soils; operties of manures, and their effects; the most tageous method of applying manures on dif- soils; the improvement of lands; advantages drill over the old husbandry; a new culture , that is preferable to the old; experiments on nt grains; experiments on turnips, with a f the fly; on fruit trees and flowers; on fat- hogs; on a drill machine; analysis of soils manures. The author had possessed a supe- ind, and a very enlightened understanding, h the work is far from being a compendious e on agriculture. Not half the points are d at all, and some are nothing advanced; the g of crops is much advocated, and the large manures. A drill machine of 6 coulters is de- d, which shows the foundation of the modern nents. The author concludes "that a judi- pplication of manures, with a proper course of crops and a thorough tillage, are the chief and grand secrets of agriculture."

CLXV.—Ley, 1787.

Charles Ley, land surveyor, wrote "The nobleman, gentleman, land steward, and surveyor's complete guide;" in which is described every circumstance relative to the proper management of estates; comprehending the office and duty of a land steward, in all its parts, with some useful hints to surveyors; also the current prices of estates throughout the kingdom, by which any gentleman or steward may ascertain the exact value of any estate, whether in fee, copy, or leasehold. London, 1787, 8vo., price 3s. 6d.

The above statement appears in the Bibliotheca Britannica, and in Loudon's catalogue of authors; but the name of Charles Ley, or of the book, is not found in the libraries of the British Museum.

CLXVI.—Adam, 1789.

James Adam, Esq., wrote "Practical essays on agriculture; containing an account of soils, and the manner of correcting them; an account of the culture of all field plants; also on the management of grass lands; with observations on enclosures, fences, farms, and farmhouses;" London, 1789, 2 vols., 8vo., price 12s. The libraries of the British Museum do not possess this book, and no author of that name, on agricultural subjects; the authority for its insertion rests in the Bibliotheca Britannica, and on Loudon's list of authors. The absence of this work, and of the last mentioned author, is to be regretted, as the titles show something respectable, and agriculture was making very rapid strides. Our search could hardly miss the books, if written in the catalogue.

CLXVII.—Falconer, 1789.

William Falconer, M.D., F.R.S., was physician to the General Hospital, Bath. He wrote many professional works, which were much esteemed; and "An essay on the preservation of the health of persons engaged in agriculture, and on the cure of diseases incident to that way of life;" London, 1789, 8vo., price 1s. 6d. This book may not be reckoned an agricultural work; but the tools of action in any proceeding require an equal care with the modes and results of operations, and consequently demand a similar consideration. Living organisms claim the precedence of inert materials, and the cure is more heavy, and the value greater.

Falconer's essay forms a thin octavo volume of 38 pages of continued writing, without any division. The author discusses the employment of rural labourers, their diet, accommodation, and medical treatment. After describing the most common diseases and the necessary prescriptions, the author

advises that all parish clergymen be so far educated in the medical art, as to prescribe in all cases of moderate affection, and that the professional man be fetched when the disease exceeds mediocrity. This arrangement would imply an increase of salary from the landed property of the parish, as all services would be gratis. The benevolent justice of the intention admits no doubt, and a hope is expressed that the arrangement may soon be made. It is just, it is fair, it is equitable, nay it is imperative that labour be maintained in competence and comfort, by the fruits of its own exertions.

CLXVIII.—Wright, 1789.

Rev. Thomas Wright, Rector of Auld, in Northamptonshire, wrote "Account of the advantages and method of watering meadows by art, as practised in Gloucestershire;" London, 1789, 8vo., price 1s. 6d. "The art of floating land, as it is practised in the county of Gloucester, shown to be preferable to any other method in use in this country; with minute and plain directions, and three descriptive plates;" London, 1789, price 3s. 6d. "On the formation and management of floated meadows, with corrections of errors found in the treatises of Messrs. Davis, Marshall, Boswell, Young, and Smith, on the subject of floating;" 1800, 8vo., price 6s.

Only one of the above mentioned works is found in the libraries of the British Museum—"The art of floating land," which forms a thin octavo of 95 pages, with three plates of float-work. The writings of this author have always been favourably reported and justly esteemed. The author writes on the title-page, "Thomas Wright," author of Large farms recommended. This work is not noticed in any other place, and seems to have escaped the research even of the Bibliotheca Britannica.

CLXIX.—Curtis, 1790.

William Curtis, an eminent botanist, was born in Hampshire in 1746—died in 1798. He was author of several botanical works, during the time of his being lecturer at the Apothecaries' Garden in Chelsea, and is known as the founder of the Botanical Magazine. He wrote "Practical observations on the British grasses, best adapted to the laying down and improving meadows and pastures;" 8vo. This is a very useful volume, containing the portraits and characters of the best grass plants, with the use and practical management. No subsequent work has over done the merits of the book in the small compass it contains. The portraits are true in the likeness, and correct in the execution.

CLXX.—Clarke, 1792.

Charles Clarke wrote "Treatise on the earth, called gypsum; with an account of its extraordinary effects as a manure, cheap and more productive to vegetation than any hitherto made use of;" London, 1792, 8vo., price 1s. 6d. The name of this author appears only in the Bibliotheca Britannica, from which the above notice is taken; Loudon's list of authors does not print the name, and the work is not found in the libraries of the British Museum. It may be contained in some volume of tracts, in which many similar treatises are combined to form a book. But the price being stated might infer a separate publication; probably in the first place, and afterwards joined with others.

CLXXI.—May, 1792.

Thomas May wrote "Minutes of agriculture, and the description of machines and implements of husbandry, in reply to Mr. Cooke's annotations; London, 1792, 8vo. The Bibliotheca Britannica is the sole authority for the name of this writer, which does not appear in any other list or catalogue.

CLXXII.—Hutton, 1792.

James Hutton wrote "Principles and practice of agriculture" 2 vols., 8vo. This writer may be Dr. Hutton, the author of "The theory of the earth," whose works appear in every list of authors and library of books; but no notice is made of the above work. It is frequently advertised by booksellers of the lower degree.

CLXXIII.—Frazer, 1793.

Robert Frazer, Esq., A.M. wrote "General view of the agriculture of the county of Devon; with observations on the means of improvement;" London, 1792, 4to. "General view of the agriculture and mineralogy, present state and circumstances of the county of Wicklow; with observations on the means of improvement, drawn up for the Dublin Society;" Dublin, 1801, 8vo. "Gleanings in Ireland, particularly respecting its agriculture, mines, and fisheries;" London, 1802, 8vo., price 3s. "A letter on the most effectual means for the improvement of the coasts and western islands of Scotland, and the extension of the fisheries;" London, 1803, 8vo., 5s. "General view of the county of Cornwall, with observations on the means of its improvement, drawn up for the consideration of the Board of Agriculture;" 4to., London, 1794. These reports are well performed, and contain each about 70 quarto pages; Wicklow is by itself in a volume of 200 octavo pages. It is very sensibly written, and prospectively moderate.

CLXXIV.—Society of Gentlemen, 1793.

This title wrote "The complete farmer, or a general dictionary of husbandry in all its branches;" London, folio, 1793. This dictionary contains the letters of the alphabet in the matters of agriculture, with many plates of implements, machines, and

cereal plants. The book of this date is called the fourth edition; but the previous ones had escaped notice. The work is very creditable, and the authors belonged to a society for encouraging arts, manufactures, and commerce. The article on paring and burning, called "burn-baking," is very sound and enlightened.

CLXXV.—Baird, 1793.

Thomas Baird wrote "General view of the agriculture of the county of Middlesex, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal improvement;" London, 4to., 1793. This report occupies 51 quarto pages, and is without embellishments of any kind. The matter is well arranged, and very sensibly expressed. It was the first report of the county of Middlesex, and was followed by those of Foot and Middleton.

CLXXVI.—Donaldson, 1794.

James Donaldson, of Dundee, land surveyor, wrote "View of the Carse of Gowrie, in Perthshire;" London, 1794, 4to. "General view of the agriculture of the county of Nairn;" London, 1794, 4to. "General view of the agriculture of Elgin and Moray." "General view of the agriculture of the counties of Perth, Banff, Northampton, and Kincardine;" London, 1794, 4to. "Modern agriculture; or the present state of agriculture in Great Britain;" Edinburgh, 6 vols., 8vo., 1793-6.

Nothing is known of this author, except the above designation; the last-mentioned work is not found in the National Library, which contains the county reports. The author writes himself agent for the Earl of Panmure, and treats the subjects that come under his view in a very judicious and enlightened manner.

CLXXVII.—Swayne, 1794.

G. Swayne, A.M., vicar of Pucklechurch, Gloucestershire, wrote "Gramina pascua, or a collection of the specimens of the common pasture grasses, arranged in the order of their flowering, and accompanied with their English and Linnean names, as likewise with familiar descriptions and remarks;" London, 1790. 9 pages and 4 plates, price 10s. This notice is contained in Loudon's list of authors, and in the Bibliotheca Britannica; but the work is not found in the National Library. No opinion has been known of its merit, and it may not have reached any celebrity.

CLXXVIII.—Sinclair, 1794.

Right Hon. Sir John Sinclair, Bart., LL.D., M.P., founder and president of the Board of Agriculture, was born at Thurso Castle, in the county of Caithness, in the year 1754. He was the son of George Sinclair, of Ulster, heritable sheriff of Caithness, the representative of a very old and nobly descended family, that is originally from France. It came to England with William the Conqueror, passed into Scotland, and founded all the Scotch families of Sinclair. The Ulster branch is one of the oldest from the parent stem.

The subject of this memoir, when he was 17 years old, lost his father, when his minority and education were superintended by his mother, Lady Janet Sutherland, who seems to have been a lady of very uncommon management. The son was sent to the High School of Edinburgh, and at the proper age attended the colleges of Edinburgh, Glasgow, and Oxford. This varied education very much improved his observant mind, and he ever afterwards acknowledged the benefits of the change. He early indulged in literary composition, and before he was sixteen had sent some effusions to the periodicals of the day. He returned to his native country from Oxford, and studied law—not professionally, but to gain an acquaintance with the national institutions. In 1775, he became a member of the faculty of advocates, and was afterwards called to the English bar. The circle of his acquaintance was thus increased, but no attachment was formed to the legal profession. He journeyed through France with an invalid brother, and was elected Member of Parliament in 1780, for his native county, and sat in the House of Commons for 30 years. In 1786, he applied for and obtained a baronetage as heir and representative of Sir George Sinclair, of Clyth, with descent to heirs male with the intervention of females; a very remarkable distinction, and scarcely has a parallel.

Sir John Sinclair early enlisted under the banner of Pitt, to whom he adhered and supported in every occasion. He became a warm party politician, a zealous agriculturist, and a very active general statist. His writings were confined to letters and pamphlets on political and financial matters, which had the passing reputation that attaches to the productions. He made a journey of 7,500 miles over northern Europe, and collected much information on the condition of the northern kingdoms, and made many valuable friendships with eminent personages of the day. In 1787, he commenced rural improver on his own estates, which have ended in giving a new physiognomy to the county of Caithness. The estate comprehended 100,000 acres of neglected lands, not very rich naturally, and let in the hands of small tenants, who held in mixed lands, and huddled a cropping of it for a bare existence. He established farms of a moderate extent to suit the amounts of capital that could be obtained, and was obliged to expend his own money freely on loan or in promissory obligations of no mentioned date.

The social circumstances favoured these operations, and the continued advance in the value of agricultural produce rendered successful every attempt to improve the soil. The realizations were great; a rental of £300 very soon rose above £1600, and the moral state of the tenantry was largely improved. Cheviot sheep were introduced, and added much to the value of mutton and wool. The yearly produce of one estate was raised from £282 to £8,000, and when sold, it brought £40,000. Everywhere a rude civilization was civilized, and the country improved, without being depopulated.

The public roads did not escape notice; and Government was interested in the undertaking by the exer..ons of the county member. Plantations of trees were largely done, and the fisheries were provided with villages, which continue in a thriving condition to this day. Money was advanced to private persons to engage in the fishing trade, and public aid was procured for the building of harbours. The idea, or rather the necessity of a consuming population, did not escape the grasp of thought, and new towns were planned and old ones repaired. A society was established for the improvement of wool, in the Western highlands and isles, which did much good.

In 1791, the idea occurred of the statistical account of Scotland, which was done by the clergyman of each parish, and was finished in seven years. This was a Herculean task, and cost much labour and perseverance; but it amply repaid every exertion by the vast mass of information it conveyed on general statistics. In 1793, the plan was circulated for establishing a Board of Agriculture, and after some little opposition, a yearly grant of £3,000 was obtained, and a charter from the Crown, and also the privilege of franking, in order to save the enormous expense of postage in the necessary communications. The extensive and very useful labours of this Board are well known; each county in the kingdom was surveyed by competent persons, and a large and interesting correspondence was established. The communications were collected and published in volumes, which added very much to the utility of the establishment. Sir John Sinclair strongly advocated a bill of general enclosure, and partly succeeded; he wrote much on finance, taxation, and revenue. He corresponded with many eminent men over the world, and was consulted by foreign governments on agricultural subjects, to whom he ever recommended experimental farms. He continued an unceasing labour on various subjects, till his death in 1835.

The agricultural works of Sir John Sinclair are as follow:—"The statistical account of Scotland, drawn up from the communications of the ministers of the different parishes;" Edinburgh, 1790-1798, 12 vols., 8vo. "Communications to the Board Agriculture on subjects relating to husbandry a internal improvement;" London, 1797, 4to. "E quiry into the nature and causes of the blight, ru and mildew;" 1800, 8vo. "General view of t agriculture of the Northern counties and islands Scotland." "An account of the systems of hu bandry adopted in the most improved districts Scotland; with some observations on the improv ments of which they are susceptible;" Edinburg 1808, 8vo. "On oil as a manure." "An enqui into the culture and use of the potato;" Code Agriculture, 1 vol., 8vo. "Report on the subj of Shetland wool;" London, 8vo. "The agricultu of the Netherlands;" 1806, 8vo. "Account of t origin of the Board of Agriculture, and its progr during the first three years;" London, 1798, 4

Sir John Sinclair spent an active life, of a m than ordinary duration, in promoting the welf of mankind. He spared no expense, no bod labour, and no mental exertion, in order to advar the object in view, and few persons ever pursued occupation with more ardent zeal or more per vering industry. The gigantic exertions of indi dual minds have ever done more to adorn, impro and dignify the human race, than any collection men or classes; the short space of one life d more general good than generations of regu tendency. No man ever lived who has done m for agriculture than the subject of our memoir, in a greater variety of ways for the advancement its knowledge. For upwards of half-a-century, t subject was uppermost in his mind, in relation some particular branch of its bearings; the gene purpose of increasing the fertility of the eart surface, was never slipped or allowed to be o of view. His name must ever be regarded a great benefactor of the human race, and one wh fame is confined to no time or country. No pill no stone, no bust, commemorates his services; is his own monument, which he erected by his s vices and exertions. This is true, but may not just and generous.

With some very few exceptions, Sir John Sinc was a strict politician of the anti-liberal school, a firmly believed that agriculture as an art could n live, and far less be advanced and flourish, unl protected by artificial regulations and fis exactions. With this propensity in himself, an keener bias in Arthur Young, who was secretary the Board of Agriculture, that institution beca a political debating club, from which Governm withdrew the yearly grant of £3,000, and consu mated its overthrow. The idea is not yet extinct the world, that one being or thing must live on depressed condition of another. The crotchets Sir John Sinclair were not greater than of ma

others, whose general views were much less correct, and not nearly so profound. He often thought deeply, and generally opined well.

CLXXIX.—Elstobb, 1794.

W. Elstobb, engineer, wrote "Historical account of the great level of the fens, called Bedford level, and other fens, marshes, and lowlands in the kingdom, and other places;" Lynn, 1794, 8vo. This work occupies 276 octavo pages, and is not in boards. It was followed by a philosophical treatise on rivers, by the same author, and both works were duly esteemed at the same time.

CLXXX.—Maxwell, 1794.

George Maxwell of Hetton, near Stilton, wrote "General view of the agriculture of the county of Huntingdon, and observations on the means of its improvement; with an appendix, containing an account of the advantages to be derived from an improved outfall at the port of Lynn, and answers to the supposed objections. Drawn up for the consideration of the Board of Agriculture and internal improvement;" London, 1794, 4to. This report occupies 47 quarto pages, and the book has escaped the notice of Mr. Loudon, and also the Bibliotheca Britannica. The ideas are short and meagre, and correspondingly expressed.

CLXXXI.—Granger, 1794.

Joseph Granger, land-surveyor, Heugh, near Durham, wrote "General View of the Agriculture of the County of Durham, particularly that part of it extending from the Tyne to the Tees, with observations on the means of its improvement, drawn up for the consideration of the Board of Agriculture, and internal improvement;" London, 1794, 4to. This work fills 74 quarto pages, and was at the time of publication reckoned a good performance. Mr. Granger wrote very truly on the subject.

CLXXXII.—Walker, 1794.

D. Walker, No. 14, Upper Marylebone Street, London; wrote "General view of the agriculture of the county of Hertford, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal improvement;" London, 1794, 4to. This work fills 66 quarto pages, the matter is well arranged, and suitably expressed. There is nothing new, or any better performance that deserves a special notice.

CLXXXIII.—Bailey, 1794.

Mr. John Bailey, of Chillingham, wrote "General view of the agriculture of the county of Northumberland, with observations on the means of its improvement. Drawn up for the consideration of the Board of Agriculture and internal improvement;" London 1794, 4to. Mr. George Culley, who has been already noticed, was joined with Mr. Bailey in this performance. The book occupies 63 quarto pages, and has ever been reckoned one of the best of the many reports that were sent to the Board. The enlightened views it contains are seldom printed.

Mr. Bailey was originally from Durham, and lived at Chillingham as land-agent to the Earl of Tankerville. He was a person of very superior abilities, and became an extensive agent for the noblemen of that country. His practical agriculture was first-rate, and the mechanical turn of his mind much advanced the perfection of the threshing implement, and the double drill turnip-seed sowing machine. Mr. Bailey's family were eminent as himself, and are not yet extinct in that county. He wrote "General view of the agriculture of the county of Durham, with observations on the means of its improvement. Drawn up for the consideration of the Board of Agriculture and internal improvement;" London, 1811, 8vo., "General view of the agriculture of the county of Cumberland;" 8vo.

CLXXXIV.—Rennie, 1794.

George Rennie wrote "General view of the agriculture of the West Riding of Yorkshire," by Messrs Rennie, Brown, and Shireff; London, 1794, 4to. This work fills 140 quarto pages, and the performance has much repute. The three authors were eminent names. Mr. Rennie was an East-Lothian farmer, and became proprietor of Phantasie near Dunbar, on which his son acted a conspicuous part in varied agriculture. Our present notice was a well-educated practitioner, on whom it showed the attendant effects.

CLXXXV.—Shirreff, 1794.

John Shirreff, of Captain Head, near Haddington, Scotland, wrote "General view of the agriculture of the West Riding of Yorkshire," along with Messrs. Rennie and Brown; and "General view of the agriculture of the Orkney Islands, with observations on the means of their improvement; drawn up for the Board of Agriculture;" Edinburgh, 1804, 8vo. "Method of stacking turnips to preserve them through the winter;" Nicholson's Journal, xiii., 268, 1806. Mr. Shirreff was a noted agriculturist, and his posterity yet uphold the reputation which he earned.

CLXXXVI.—Brown, 1794.

Robert Brown farmed at Markle, near Haddington, in the county of East Lothian, and has left behind him a name of no common professional stature. He was the son of John Brown, a respectable merchant in the village of Linton, Preston Kirk,

in 1798, was added "A sketch of the vale of London, and an outlime of the rural economy, proposals for a rural institute or college of agriculture, and other branches of rural economy;" London, 1798, 8vo., price 1s. 6d. "On the appropriation and enclosure of commonable and intermixed lands, with heads of a bill for the purpose; together with remarks on the outline of a bill by a committee of the House of Lords for the same purpose;" London, 1801, 8vo., price 2s. 6d. "An elementary and practical treatise on the landed property of England, containing the purchase and improvement of landed estates;" London, 1806, 4to., price 42s. "Treatise on the management of landed estates"—a general work for the use of professional men, being an abridgment of the former; London, 1806, 8vo., price 10s. 6d. "A review of the reports of the Board of Agriculture from the northern departments of England;" London, 1808, 8vo., price 12s. "A review of the reports of the Board of Agriculture from the western dapartments of England;" London, 1809, 8vo., price 12s. "A review of the reports of the Board of Agriculture, from the eastern departments of England;" London, 1812, 8vo., price 12s. "Review and complete abstract of the reports to the Board of Agriculture from the midland departments of England;" London, 1815, 8vo. "A review and complete abstract of the reports to the Board of Agriculture from the southern and peninsular departments of England;" 1817, price 19s. "A review and complete abstract of the reports to the Board of Agriculture from the several departments of England;" 1817, 5 vols., 8vo., price 60s. "Of the black canker caterpillar, which destroys the turnips in Norfolk;" Phil., Trans., Lib. XV, 386, 1783.

William Marshall had but little education, of which the want was supplied by a mind of no common strength and energy. He adhered to purpose with an invincible obstinacy, and an imperturbable steadiness; nothing could divert him from the plan which he originally laid down, that of collecting and condensing the agricultural practice of the different counties of England, with a general work on landed property; another on "Agriculture," which he did not live to complete, and a rural institute. The boards and societies which have succeeded do not realize the latter idea. It has yet to be done.

The writings of Marshall are very valuable, and as an author he must be preferred to Arthur Young. The matter is better arranged, and his practical knowledge was more correct; condensation was his object, as the want of it scattered the materials of Young. It is quite true, that compression is more powerful than expansion, and that condensation is desirable; but to abridge everything requires that an author sees everything, which is an attainment probably far removed from human reach. A certain degree of expansion is required in order to convey the meaning in the full force: if it be too diffused, it loses power; and if too confined, the opportunity of action is not conferred. Both Young and Marshall were inferior to James Anderson in the comprehensive grasp of the subject, which caught the essence, and let go the grossness, and looked at the object from a point of view that was divested of the crotchets and adventitious appurtenances which perplex and encumber almost every mind that attempts to delineate any practical application.

As a rational observer and practical compiler Marshall was most decidedly superior to Young.

The georgical element of the human race was very strong in Marshall, and it had a more correct development with him than was manifested by Tull or Young, or by any agriculturist that had preceded him. Almost every human being dirties his fingers with the soil in some shape or form; if the hand does not actually touch the soil, the eye observes, the mind ruminates, and the pen is used to communicate the ideas that arise on the use of the ground. Almost no profession has debarred its votaries from giving aid to agriculture: the lawyer has doffed his wig, the clergyman has laid aside his gown, and the sons of medicine have neglected the jar and the pestle, in order to contribute a mite to farther the good cause. And agriculture has been much indebted to their efforts.

CL.—Forbes, 1778.

Francis Forbes, Gent, wrote "The extensive practice of the new husbandry exemplified on various sorts of land for a course of years; and the importance of that husbandry to Britain, shown from long experience of several eminent husbandmen;" London, 1778, 8vo., price 9s. "The improvement of waste lands; viz., wet moory lands; land near rivers and running waters; peat land; and propagating oak and growing timber upon neglected and waste lands; London, 1778, 8vo., price 9s.

Only the last mentioned work is found in the library of the British Museum. It is an octavo volume 210 pages, and is mostly composed of speculative projects, as canals, plantations of oaks and osiers, the cultivation of hemp, and other exotic ideas. The practical part is nothing. The author seems to have been a small landed proprietor.

CLI.—Wight, 1778.

Andrew Wight wrote "The present state of the husbandry in Scotland;" Edinburgh, 1778, 1799, 6 vols., 8vo. This work is formed from reports made to the commissioners of annexed estates, who were appointed to observe and report the progress of improvements on the allotted grounds. The author had compiled the work, or had travelled as an in-

spector; his name is not attached to the book itself, but has the title in every catalogue and library. The contents are valuable, and contain a mass of most useful information. Threshing machines were then used.

CLII.—Black, 1778.

James Black, of Mordon, Surrey, wrote "Observations on the tillage of the earth, and on the theory of instruments adapted to this end;" London, 1778, 8vo., price 5s. The name of this author is not otherwise known. The book is a thin quarto of 40 pages, treating on ploughs, exhausting crops, soils, labouring cattle, and cultivation of waste lands. A long dissertation on the relative advantages of horses and oxen as beasts of draught, the prime cost and maintenance of each animal, is hardly able to establish the ox as superior to the horse, which seems to be the object of the calculation. The sketches of implements are little worth.

CLIII.—Boswell, 1780.

George Boswell, a landed proprietor of Gloucestershire, wrote "Treatise on watering meadows, wherein are shown the many advantages arising from that mode of practice, particularly on coarse, boggy, or barren lands;" with four copperplates. London, 1780, 1793, 8vo., price 2s. 6d. The book is a thin octavo of 108 pages, with a dedication to the Earl of Ilchester, dated Piddletown, Dorset, March 25, 1779. The chapters are fourteen:—I. On land capable of being flooded. II. An explanation of the terms, principles, and instruments, used in watering meadows. III. General description of water meadows. IV. A meadow watered regularly from a stream running through it. V. A meadow irregularly watered, the stream passing by the side of it. VI. A meadow watered by a head main taken out of the river a considerable distance above it. VII. Planning a meadow of eight acres, an actual survey. VIII. The execution, or manual part of the work. IX. Description of wares and sluices. X. The various erections in water meadows. XI. Land floods. XII. Repairing the works. XIII. Watering the meadows. XIV. Haymaking.

The plates show the watering of meadows in regular ridges, and also in irregular formations of ground, where the canals of water are guided by the inequalities. The essay possesses much merit, and has not been surpassed by the usage of the present time.

CLIV.—Trussler, 1780.

Rev. John Trussler, LL.D. of Cobham, Surrey, a singular literary character and compiler, was born in London, 1735; died in 1815. He wrote largely on history, chronology, law, romances, and humourous subjects. He published on gardening, and also "Practical husbandry, or the art of farming with a certainty of gain, as practised by judicious farmers in this country, the result of experience and long observation." In this work is contained all the knowledge necessary in the plain business of farming, unincumbered with theory, speculation, or experimental enquiry; also a number of estimates of the expenses and profits of different crops in the common way, taken from minutes kept; and a variety of useful remarks, not to be met with in any books of agriculture, together with directions for measuring timber.

The above statement is the title-page of an octavo book of 160 pages, which is bound with other short works on agriculture. In 21 chapters, there are mentioned, soils, the team, wheat, barley, oats, buckwheat, beans, peas, tares, turnips, clover, course of crops, profits of an arable and grass farm, ploughing and harrowing, weeding, hedging and ditching, threshing, manuring, miscellaneous observations, price of labour, on measuring timber.

The net profit of an acre of wheat is stated to be £2 10s., and the produce of the grain at 2¼ quarters; barley yields 4 quarters, and the profit is £3 3s. 6d.; oats produce 4 quarters, and the profit is £1 19s. 10d.; the produce of buckwheat is the same, and the profit is £2 19s. 1d.; beans yield 3½ quarters, and the profit is £1 13s.; peas yield 3 quarters, and the profit is £1 8s.; tares yield yield 2 quarters, and the profit is 11s. 4d.; and from a crop of hay £1 9s 6d. A ton of turnips is valued at about 30s.; an acre of clover is worth 35s., when fed with swine at £11 9s. 6d., by hurdling £6 6s. 10d.; an acre of hay £1 7s. 9d. The course of crops is not scientific in having oats after wheat, and turnip fallow after the smothering crop of peas. A farm of 150 acres leaves a profit of £379, and an acre of meadow about £1 11s. The cost of threshing grains differs a little from the present prices.

The list of manures gives no addition of any notable substance. Meadows are advised to be mown and grazed alternately; an acre of turnips will winter eight sheep, and 2½ acres of grass. A long list is given of the prices of job work, and of daily labour.

This short treatise shows a very correct practical knowledge, and much sober sense. The calculations are just, and founded on experience: no animals are mentioned.

CLV.—Halyburton, 1782.

William Halyburton, D.D., wrote "Georgics," in a series of letters to a friend; Edinburgh, 1782, 8vo, price 6s. This notice is taken from the Bibliotheca Britannica, in which alone the name of the author is found. It is therefore not known if the book was in prose or poetry, if it related to the works of cultivation of land, or to other georgical performances.

CLVI.—Raley, 1782.

William Raley, student in physic and botany, in Barmby upon the Moor, near Pocklington, Yorkshire, wrote "A treatise on the management of potatoes, or a new method of preventing and removing the disorders thereof, called curled tops; with remarks on the usual treatment and application of potatoes;" London, 1782, 8vo., price 3s.

This essay occupies 43 octavo pages, and attributes the curl top to several causes:—as, low damp grounds; want of change of seed; too often planting on one place; and to the sets being too small. This treatise was followed by an essay on the right management of potatoes, which differs little from the previous work. The author recommends various preventives, which deserves notice.

CLVII.—Twamley, 1784.

Josiah Twamley wrote "Dairying exemplified;" or the business of cheesemaking laid down from approved rules, collected from the most experienced dairywomen of several counties, digested under various heads; from a series of observations, during thirty years' practice in the cheese trade. With the most approved mode of making butter, and a dissertation on pine-apples: Warwick, 1784, 8vo, 2s. The book occupies 142 octavo pages in one continued essay, without chapters or divisions. There is shown very much sound knowledge of the subject, and many judicious suggestions.

CLVIII.—Turner, 1784.

Mr. Nicholas Turner, of Bignor, Sussex, wrote "An essay on draining and improving peat bogs, in which their nature and properties are considered;" London, 1784, 8vo., price 5s. The book is an octavo of 86 pages, discussing the origin of peat, its nature, and qualities in different situations. The expense of improvements is stated, the value of the returned crops, and the profits. It appears the author had never seen any true moss, but only reckoned upon mossy earths, and borrowed many statements from doubtful authorities. But his views are clearly stated, and very justly expressed.

CLIX.—Cooke, 1784.

James Cooke, inventor of a new drill machine, wrote "Drill husbandry perfected;" 1784, 12mo. This book is not found in the libraries of the British Museum, and the author is not placed in Loudon's list of authors. The above notice is taken from the Bibliotheca Britannica, which is the sole authority for the insertion of the name. But it occurs to our memory that the work had been seen by ourselves, though nothing more can be recollected of it.

CLX.—Small, 1784.

James Small wrote "Treatise on ploughs and wheel carriages;" Edinburgh, 1784, 8vo. He held a small farm in Roxburghshire, whence he removed to the vicinity of Edinburgh, and became a noted machinist. He made great improvements on the Rotherham plough, and the mouldboard which he devised and attached has not been much altered in that country, and is yet known by his name.

The libraries of the British Museum do not possess Small's treatise; but Loudon's list of authors joins with the Bibliotheca Britannica, in giving the above statement of the author and the book.

CLXI.—Stone, 1785.

Thomas Stone was a land surveyor in Gray's Inn, London, and land agent to the Duke of Bedford; died at Paris in 1815. He wrote "An essay on agriculture, with a view to inform gentlemen of landed property whether their estates are managed to the greatest advantage;" London, 1785, 8vo., 6s. "Suggestions for rendering the inclosure of common fields and wasts lands a source of population and riches;" London, 1787, 8vo., price 1s. 6d. "General view of the agriculture of the county of Huntingdon;" London, 1793, 4to. "General view of the agriculture of the county of Bedford;" London, 1794, 4to. "General view of the agriculture of the county of Lincoln;" London, 1794, 4to. "A review of the corrected agricultural survey of Lincolnshire, by Arthur Young Esq.; with an address to the Board of Agriculture, and a letter to its Secretary; and remarks on the recent publication of John Lord Somerville, on the subject of inclosures;" London, 1800, 8vo., price 8s. "A letter on the drainage of the east, west, and wild moor fens, addressed to the proprietors of marshes in Lincolnshire;" London, 1800, 8vo., price 1s. "Letter on the intended drainings and inclosures of the moor fens in the county of Lincoln;" 1800.

The essay on agriculture, which was probably the most valuable of Stone's professional works, does not appear in the libraries of the British Museum, nor do the letters on draining of the fens. The three county surveys are short statements of the farming, followed with suggestions for its improvement. The survey of Lincoln fills 105 pages of quarto size. The suggestions on inclosures fills 86 octavo pages, which argue strongly in favour of enclosing, and confute the opposite statements in detail. Stone had been a person of a rational attainment, and very sound judgment. Though he had never practised farming, his views are very enlightened, and deductions correct.

CLXII.—Young, 1786.

David Young, of Perth, wrote "National improvements in agriculture;" in 27 essays, Edinburgh, 1786, 8vo., price 5s. "Agriculture the primary interest of Britain;" Edinburgh, 1788, 8vo., price 6s. This statement appears in the Bibliotheca

Britannica, and Loudon's list of authors quotes the first work, and omits the second. The libraries of the British Museum do not possess a book or author of the name.

CLXIII.—Culley, 1786.

George Culley wrote "Observations on live stock, containing hints for choosing and improving the best breeds of the most useful kinds of domestic animals;" London, 1786, 8vo., price 3s. "General view of the agriculture of Northumberland;" along with J. Bailey. The name of Culley in three brothers emigrated from the county of Durham into Northumberland, and rented the farm of Fenton, near Wooler, in 1767. By introducing the improved Leicester sheep, and adopting the drill cultivation of turnips on these very favourable soils, and propitious climate, their fortune was rapidly extended; the border farm of Wark was long the scene of their operations, which ended in amassing a patrimony of landed estates to their posterity. Much activity and energy were displayed by the Culleys, which under less favourable circumstances might not have been so successful; but still great merit is due to the name, which yet exists in that county. The treatise on live stock has ever been very justly esteemed, and the county survey shows an enlightened mind: George Culley died in 1813, aged 79.

CLXIV.—Winter, 1787.

George Winter, a practical agriculturist, wrote "A new and compendious system of husbandry; containing the mechanical, chemical, and philosophical elements of agriculture;" Bristol, 1787, 1797, 8vo., price 9s. The author was member of several learned societies, and writes the dedication of his book to the Duke of Beaufort from Charlton, Gloucestershire. The work is an octavo volume of 349 pages in 12 chapters on properties of different soils; the properties of manures, and their effects; the most advantageous method of applying manures on different soils; the improvement of lands; advantages of the drill over the old husbandry; a new culture shown, that is preferable to the old; experiments on different grains; experiments on turnips, with a cure of the fly; on fruit trees and flowers; on fattening hogs; on a drill machine; analysis of soils and manures. The author had possessed a superior mind, and a very enlightened understanding, though the work is far from being a compendious treatise on agriculture. Not half the points are touched at all, and some are nothing advanced; the drilling of crops is much advocated, and the large use of manures. A drill machine of 6 coulters is delineated, which shows the foundation of the modern implements. The author concludes "that a judicious application of manures, with a proper course of crops and a thorough tillage, are the chief and grand secrets of agriculture."

CLXV.—Ley, 1787.

Charles Ley, land surveyor, wrote "The nobleman, gentleman, land steward, and surveyor's complete guide;" in which is described every circumstance relative to the proper management of estates; comprehending the office and duty of a land steward, in all its parts, with some useful hints to surveyors; also the current prices of estates throughout the kingdom, by which any gentleman or steward may ascertain the exact value of any estate, whether in fee, copy, or leasehold. London, 1787, 8vo., price 3s. 6d.

The above statement appears in the Bibliotheca Britannica, and in Loudon's catalogue of authors; but the name of Charles Ley, or of the book, is not found in the libraries of the British Museum.

CLXVI.—Adam, 1789.

James Adam, Esq., wrote "Practical essays on agriculture; containing an account of soils, and the manner of correcting them; an account of the culture of all field plants; also on the management of grass lands; with observations on enclosures, fences, farms, and farmhouses;" London, 1789, 2 vols., 8vo., price 12s. The libraries of the British Museum do not possess this book, and no author of that name, on agricultural subjects: the authority for its insertion rests in the Bibliotheca Britannica, and on Loudon's list of authors. The absence of this work, and of the last mentioned author, is to be regretted, as the titles show something respectable, and agriculture was making very rapid strides. Our search could hardly miss the books, if written in the catalogue.

CLXVII.—Falconer, 1789.

William Falconer, M.D., F.R.S., was physician to the General Hospital, Bath. He wrote many professional works, which were much esteemed; and "An essay on the preservation of the health of persons engaged in agriculture, and on the cure of diseases incident to that way of life;" London, 1789, 8vo., price 1s. 6d. This book may not be reckoned an agricultural work; but the tools of action in any proceeding require an equal care with the modes and results of operations, and consequently demand a similar consideration. Living organisms claim the precedence of inert materials, and the cure is more heavy, and the value greater.

Falconer's essay forms a thin octavo volume of 38 pages of continued writing, without any division. The author discusses the employment of rural labourers, their diet, accommodation, and medical treatment. After describing the most common diseases and the necessary prescriptions, the author

4to. These reports are short, only 16 pages in some cases, and consequently can convey but little information, yet they rank with others without discredit. The name of the author had wholly escaped Mr. Loudon's list, and also the Bibliotheca Britannica, as no notice occurs of it, nor of the last writer, Charles Hassall.

CCIII.—Roger, 1794.

Rev. Mr. Roger wrote "General view of the agriculture of the county of Angus or Forfar, for the consideration of the Board of Agriculture;" London, 1794, 4to. The report is only of 31 pages, and contains valuable matter in a small compass.

CCIV.—Lowe, 1794.

Alexander Lowe wrote "General view of the agriculture of the county of Berwick, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report fills 90 quarto pages, of very great merit, as ever has been acknowledged. A geological map of the county accompanies the report, and figures of several implements of uncommon structure. Mr. Lowe was a person of noted talent.

CCV.—Bruce, 1794.

Arthur Bruce, secretary to the Natural History Society of Edinburgh, wrote "General view of the agriculture of the county of Berwick, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement." This work is printed as an appendix to the former work by Lowe, and occupies 46 quarto pages. The two reports together form a work that was not equalled in the whole number of county surveys.

CCVI.—Boys, 1794.

John Boys, farmer at Betshanger, near Deal, wrote, "General view of the agriculture of the county of Kent, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report occupies 107 octavo pages, and general opinion has ever given it the palm of county reports of agriculture, for soundness of judgment and enlightened practical views.

CCVII.—Holt, 1794.

John Holt, of Walton, near Liverpool, wrote "General view of the agriculture of the county of Lancaster, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report fills 114 quarto pages, and has the county mapped in colours. It is a very respectable performance.

CCVIII.—Monk, 1794.

John Monk, (late of the 19th Light Drago of Bears Combe, near Kingsbridge, Devon, " General view of the county of Leicester, observations on the means of its improvem drawn up for the consideration of the Boar Agriculture and internal Improvement;" Lon 1794, 4to. This report occupies 75 quarto p and is illustrated with drawings of several in ments. The merit is ordinary.

CCIX.—Foot, 1794.

Peter Foot, land surveyor, Dean-street, S wrote "General view of the agriculture of the co of Middlesex, with observations on the means improvement; drawn up for the consideratic the Board of Agriculture and internal Impr ment;" London, 1794, 4to. This view fill quarto pages, and was always reckoned a sup work.

CCX.—Fox, 1794.

Mr. John Fox wrote "General view of the culture of the county of Monmouth, with obs tions on the means of its improvement; drawn for the consideration of the Board of Agricu and internal Improvement;" London, 1794, This report fills 43 quarto pages of the custo matter in those days.

CCXI.—Pearce, 1794.

William Pearce wrote "General view of the culture of Berkshire;" London, 1794, 8vo. work fills 74 quarto pages, and is illustrated engravings of ploughs and cottage dwelli The royal farms at Windsor are described. other notice of this author occurs in any place.

CCXII.—Amos, 1794.

William Amos, of Brothertoft, near Boston, colnshire, wrote "The theory and practice o drill husbandry, founded upon philosophical ciples and confirmed by experience;" with 9 pl London, 1790, 4to. "Minutes of agriculture planting, illustrated with specimens of eight of the best, and two sorts of the worst na grasses, and with accurate drawings and des tions of practical machines, on seven copperpl &c;" London, 1804 and 1810, 4to. "Essay agricultural mechanics, from communication the Board of Agriculture;" London, 1810, 8v

The works of Amos have ever been very deserv esteemed. The drill husbandry is most justly pl on the true grounds of superiority, and full d tions are given on every point of use and prepara The book is a quarto volume of 244 pages, embelli with drawings of machines and the sectional p The author carried his drilling hobby to an extre

very crop, as oats and peas, and may have rewell to discretion on that point; but his are very just.

he minutes of agriculture and planting" a quarto volume of 92 pages, with drawings eral implements, and dried specimens of many plants. On this subject the author shows l botanical knowledge, and also of vegetable logy. The "essays on agricultural machines" octavo pages, with drawings of implements. uthor shows a very accurate knowledge of the orse swing plough, which is neatly delineated he horses attached. The whole works exhibit superior mind employing an enlightened cal knowledge.

CCXIII.—Adams, 1794.

es Adams, Esq., wrote "Practical essays on lture;" 1794, 2 vols., 8vo., price 14s. This ent rests on the authority of the Bibliotheca nica, as the author is not noticed in Loudon's authors, nor in the catalogue of the National y.

CCXIV.—Wedge, 1794.

Thomas Wedge wrote "General view of the lture of the County Palatine of Chester, with ations on the means of its improvement; up for the consideration of the Board of lture and internal Improvement;" London, 4to. This work fills 87 quarto pages of the matter, with an appendix on the poor laws. ubject is concisely treated, but nothing new nprehensively enlarged is promulgated, nor thought expressed. Our research found the n George IV's library, in the British Museum, not noticed in any catalogue of authors and

CCXV.—Wedge, 1794.

John Wedge wrote "General view of the lture of the county of Warwick, with obser- s on the means of its improvement; drawn the consideration of the Board of Agriculture ternal Improvement;" London, 1794, 4to. ork fills 60 octavo pages, with a long appen- n draining land by boring, on the plan . Elkington. This book was discovered, as t, in George IV's library; no notice of it is elsewhere.

CCXVI.—Bishton, 1794.

ishton of Kilsal, Shropshire, wrote "General f the agriculture of the county of Salop, with ations on the means of its improvement; up for the consideration of the Board of lture and internal Improvement;" London, 4to. The book occupies 38 quarto pages, and to be one of the meanest county reports.

CCXVII.—Brown, 1794.

Thomas Brown of Luton, in Bedfordshire, wrote "General view of the agriculture of the county of Derby, with observations on its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This work fills 72 quarto pages, embellished with a plan of a dairy farm building, and a geological map of the very interesting geography of that county. The plough of Derbyshire is delineated, along with scythes and rakes for cutting and gathering the crops of grain.

CCXVIII.—Pomeroy, 1794.

William Thomas Pomeroy of Fairway, near Honiton, in Devonshire, wrote "General view of the agriculture of the county of Worcester, with observations on the means of its improvement; drawn up for the Board of Agriculture and internal Improvement;" London, 1794, 4to. This work contains 94 quarto pages of well arranged matter, containing information superior to the general reports.

CCXIX.—Davis, 1794.

Thomas Davis, Longleat, Wilts, wrote "General view of the agriculture of the county of Wilts, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This author was land-steward to the Marquis of Bath, and a person of superior acquirements. The present work occupies 163 quarto pages, without any embellishments, except a plain map of the county, and has always been reckoned one of the best county reports. The heads of matter are numerous, and the details are well entered and explained.

CCXX.—Crutchley, 1794.

John Crutchley, of Burley, in the county of Rutland, wrote "General view of the agriculture of the county of Rutland, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1795, 4to. This book occupies only 34 quarto pages, and has been little noticed.

CCXXI.—Malcolm, 1794.

Mr. Jacob Malcolm and Mr. William James of Stockwell, near Clapham, wrote "General view of the agriculture of the county of Surrey, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794. 4to. There are 95 quarto pages in this work of very useful and varied matter, not very methodically arranged, but handsomely expressed. Two portraits are given of a horse-hoe, and of a turnpike

road, with raised footpaths at the sides. The observations are peculiarly valuable on common lands, and the general impediments to agriculture.

CCXXII.—Davis, 1794.

Richard Davis, of Lewknor, in the county of Oxford, topographer to His Majesty, wrote "General view of the agriculture of the county of Oxford, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This is a very meagre report of 39 quarto pages, and was little noticed.

CCXXIII.—Hepburn, 1794.

George Buchan Hepburn Esq., of Smeaton, wrote "General view of the agriculture and rural economy of East Lothian, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report occupies 157 quarto pages, and was always reckoned one of the best of the many county views that were received by the Board of Agriculture.

CCXXIV.—Robertson, 1794.

George Robertson, farmer at Granton, near Edinburgh, wrote "General view of the agriculture of the county of Mid-Lothian, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report occupies 106 quarto pages, and enjoyed a good reputation both in matter and style. Two appendices contain very useful notices of the dairy and gardens.

CCXXV.—Trotter, 1794.

James Trotter, farmer at Newton, county of West Lothian, wrote "General view of the agriculture of the said county, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" Edinburgh, 1794, 4to. This report occupies only 38 quarto pages, but the matter is most intelligent and well arranged.

CCXXVI.—Robertson, 1794.

James Robertson, D.D., minister of Callander, in the county of Perth, wrote "General view of the Southern districts of the county of Perth, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report occupies 140 quarto pages, and was always noted for the very superior proposals of improvements in general husbandry. The opinion seems to have been well founded

CCXXVII.—Martin, 1794.

Alexander Martin, farmer, of Salton, Mid-Lothian, wrote "General view of the agriculture of the county of Renfrew, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. The report occupies but 22 quarto pages; being a very small county, the view of it is corresponding.

CCXXVIII.—Ure, 1794.

Rev. David Ure, of Glasgow, wrote "General view of the agriculture of the county of Roxburgh, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. The report occupies 93 quarto pages, and deserves a repute. The author wrote "The survey of Dunbarton:" these reports are very well done.

CCXXIX.—Johnston, 1794.

Mr. Thomas Johnston, wrote "General view of the agriculture of the county of Selkirk, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. The report fills 50 quarto pages, and is well performed; and also "of Tweeddale," in 42 pages.

CCXXX.—Belches, 1794.

R. Belches, Esq. of Greenyards, in the county of Stirling, wrote "General view of the agriculture of that county, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" Edinburgh, 1794, 4to. The report occupies 64 octavo pages of a superior merit.

CCXXXI.—Billingsley, 1794.

John Billingsley, Esq. of Ashwick Grove, near Shepton Mallet, wrote "General view of the agriculture of the county of Somerset, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report fills 192 quarto pages, with a neatly executed coloured map of the county. It has been justly reckoned a superior work of the kind.

CCXXXII.—Naismith, 1794.

Mr. John Naismith, at Hamilton, wrote "General view of the agriculture of the county of Clydesdale, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture, and internal Improvement;"

London, 1794, 8vo. "Observations on the different breeds of sheep, and the state of sheep farming in the Southern districts of Scotland;" Edinburgh, 1795, 4to. "Elements of agriculture, being an essay towards establishing the cultivation of the soil, and promoting vegetation, on steady principles;" London, 1807, 8vo.

The last mentioned work is not contained in the National Library: it has been favourably mentioned. The county survey occupies 82 quarto pages, and has been much esteemed: no embellishments are given. The book on sheep conveys much information, collected during a tour through the parts mentioned, and made under the direction of the Society for the improvement of British Wool. The work fills 75 quarto pages of correct observations and very acute remarks.

CCXXXIII.—Heron, 1794.

Robert Heron wrote "General view of the natural circumstances of the Hebrides or Western Islands of Scotland; the names, means, and improvements; Edinburgh, 1794, 4to. This book has been thought worth being bound with other county reports. It occupies 99 quarto pages of very miscellaneous matter, agriculture being included.

CCXXXIV.—Erskine, 1794.

John Francis Erskine, Esq., of Mar, wrote "General view of the agriculture of the county of Clackmannan, and of the adjacent parts of Perth and Stirling; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. The report occupies 133 quarto pages, with a geological map of the county. This work had much repute, being the offspring of an educated mind and very large information and experience. The matters are well handled.

CCXXXV.—Johnston, 1794.

Bryce Johnston, D.D., wrote "General view of the agriculture of the county of Dumfries, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report extends to 114 quarto pages, and a long appendix containing forms of leases, and several valuable letters. The work was reckoned among the best of the surveys; the author was a minister at Holywood.

CCXXXVI.—Beatson, 1794.

Robert Beatson, of Pitteadie, wrote "General view of the agriculture of the county of Fife, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" Edinburgh, 1794, 4to. The report fills 38 quarto pages, with many useful observations on general agriculture; the lease of land is well discussed.

CCXXXVII.—Webster, 1794.

James Webster, farmer at Fowlis Easter, county of Perth, wrote "General view of the agriculture of Galloway, in the county of Wigton and Stewartry of Kirkcudbright, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. The report occupies 42 quarto pages, and contains less valuable matter than might be expected from a district of country which contains good soils, a rich proprietary, and a breed of cattle that is one of the most symmetrical of the many varieties of British cattle.

CCXXXVIII.—Maunsell, 1794.

William Maunsell, LL.D., wrote "Letter on the culture of potatoes from the shoots;" London, 1794, 8vo. The National Library does not contain this work; the above statement appears in the Bibliotheca Britannica and in Loudon's list of authors.

CCXXXIX.—Quayle, 1794.

Thomas Quayle, Esq., wrote "General view of the agriculture of the Isle of Man, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This quotation is from the Bibliotheca Britannica; the book in the National Library is of 1812, a thin octavo of 193 pages. The work shows much practical knowledge of a correct description.

CCXL.—Pringle, 1794.

Andrew Pringle wrote "General view of the agriculture of the county of Westmoreland, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1794, 4to. This report fills 55 quarto pages, and is a very respectable performance.

CCXLI.—Macphail, 1795.

James Macphail, 20 years gardener to the Earl of Liverpool, wrote several esteemed works on gardening, and in 1795 published "Hints and observations on the improvement of agriculture;" London, 1795, 8vo. The work is not found in the National Library, which contains two books by the author, on gardening.

CCXLII.—Cochrane, 1795.

Archibald Cochrane, Earl of Dundonald, was born in 1749. In his younger years, he served in the army and navy, and on succeeding to the

earldom on the death of his father, he retired to scientific pursuits, chiefly relating to manufactures and commerce. In the prosecution of these objects he engaged in a variety of schemes, some of which were very beneficial to the public. His active mind beheld the relation betwixt chemistry and agriculture, and he wrote "A treatise showing the intimate connection between agriculture and chemistry;" London, 4to. "The principles of chemistry applied to the improvement of the practice of agriculture:" 1799, 4to. The first work is addressed to the cultivators of the soil, to the proprietors of fens and mosses in Great Britain and Ireland, and to the proprietors of West India estates. The National Library does not contain these works; a matter of regret, as the author was the first scientific person who directed attention to chemical agriculture. It has not yet progressed much beyond the first conception; but may ultimately work much benefit, though it may be justly doubted if nature has placed any matters in mosses and bogs, that can be extracted, or that are worth the labour of procurement.

The author died in 1831, and was succeeded in the title by his son, the celebrated Lord Cochrane.

CCXLIII.—Ward, 1795.

James Ward wrote "Representations of cattle, sheep, pigs, horses, at present in this Island; with descriptions characteristic of each genus, their use, merits, and defects;" London, 4to. Except in an advertisement, this work is not noticed in any place.

CCXLIV.—Anstruther, 1796.

Sir John Anstruther, Bart., wrote "Remarks on the drill husbandry, by which the superior advantages of that mode of cultivation are pointed out, and its profits ascertained from actual experiments; also a comparison of it with the most approved modes of broadcast husbandry;" London, 1796, 8vo., price 4s. This work in the National Library contains 230 pages of MS. written in a clear and very legible hand, with drawings of implements and hoed rows of plants. The twelve chapters discuss the merits of drill husbandry, its practice, the results, expenses, and profits. The book is subscribed by "John Anstruther," who must have possessed a very ample and correct practical knowledge of agriculture. No other mention has been made of the author. The name denotes a Scotch descent in the county of Fife.

CCXLV.—Kirkpatrick, 1796.

H. Kirkpatrick wrote "An account of the manner in which potatoes are cultivated and preserved, and the uses to which they are applied in the counties of Lancaster and Chester;" London, 1796, 8vo., price 1s. The work fills 46 octavo pages, describing the early and late kinds of potatoes, the various modes of culture, and use of the esculents. The author published works on divinity, and may have been a clergyman.

CCXLVI.—Hodskinson, 1796.

Joseph Hodskinson of Arundel-street, London, wrote "Plain and useful instructions to farmers; or an improved method of managing arable lands, with some hints on the drainage, fences, and improvements of roads;" addressed to country gentlemen and farmers in general. London, 1796, 8vo. This work occupies 38 pages of general directions on various points of occurrence.

CCXLVII.—Cullyer.

John Cullyer, of Wicklewood, Norfolk, wrote "The gentleman and farmer's assistant, containing tables for measuring superficial areas of lands and other plain surfaces." The figures of land are of the most simple kind, and the dimensions are taken in yards. The work occupies 123 duodecimo pages, and is usefully compiled; it passed into two editions.

CCXLVIII.—Wright, 1796.

Sir James Wright, Bart., wrote "Observations upon the important object of preserving wheat and other grain from vermin, with a safe and efficacious method of preventing the great depredations that are made on these valuable articles, &c.;" London, 1796, 4to., price 4s. This work forms a thin quarto of 68 pages, and is dedicated to the King from Rayhouse, Essex. The author recommends, by means of many favourable calculations, the use of pendant slate frames to cover ricks of hay and grains, and gives the profit that arises from the use. The subject passes into forests, common fields, and wastes, from which last the amount of an acre is given from each county. The book must never have attracted much notice.

CCXLIX.—Dillon, 1796.

John Talbot Dillon, Esq., M.R.I.A., Knight and Baron, &c., of the Sacred Roman Empire, was under-secretary of the Board of Agriculture, and wrote "An essay on the comparative advantages of oxen for tillage in competition with horses;" London, 1796, 8vo., price 2s. This author wrote largely, and had travelled much, chiefly in Spain. He got the groundwork of the above essay from communications in French, and from the results in farming of Chevalier de Monroy, and added his own ideas and observations. He labours hard, as all others on the same subject, to establish a fallacy and a contradiction to the ordinations of nature. The book needs no comment; it occupies 67 octavo

pages, and is bound along with other essays into a volume.

CCL.—Kirwan, 1796.

Richard Kirwan, LL.D., F.R.S. L. and E., Principal of the Royal Irish Academy, was an eminent philosopher and various author; died in 1812. He published works on chemistry, mineralogy, geology, temperature, and general meteorology; logic and metaphysics were included and well discussed. He wrote "On the manures most advantageously applicable to various sorts of soils, and the causes of their beneficial influence in each particular instance;" London, 1796, 8vo., price 2s. —1809, 8vo., price 2s. The work occupies 96 octavo pages, of short but very correct statements. Little or nothing new is put forth, but known facts are scientifically explained, and suggestions offered.

Mr. Kirwan's mind was refined to a philosophic nicety, and too delicate for the practices of the gross art of cultivating the earth. He neglects practical experience, as he had none, and descants largely on the chemical relations of the art, and in a minuteness that was well observed by Arthur Young to be wholly useless in agriculture, however desirable in all matters that are purely scientific.

CCLI.—Proctor, 1796.

W. Proctor wrote "Complete agricultural dictionary;" one large volume, 8vo. No notice of this statement anywhere appears, but in a bookseller's advertisement of 1810.

CCLII.—Turbilly, 1796.

— Turbilly wrote "On the cultivation of waste and barren lands;" 8vo., price 3s. This work has been advertised, but it is not seen in any catalogue of books, or list of authors.

CCLIII.—Morley, 1797.

Christopher Morley wrote "Practical observations on agriculture, drainings, &c., addressed in two letters to Sir John Sinclair;" London, 1797, 4to., price 1s. 6d. This book does not appear in the National Library; the above statement is taken from the Bibliotheca Britannica, and Loudon's list of authors. Our notice rests on these authorities.

CCLIV.—Johnstone, 1797.

John Johnstone was a land surveyor and drainer at Edinburgh. He wrote "An account of the most approved mode of draining land, according to the system practised by the late Mr. Elkington; with an appendix, containing hints for the improvement of bogs and other marshy grounds after draining, together with observations on hollow and surface draining in general—the whole illustrated by explanatory engravings, drawn up for the consideration of the Board of Agriculture;" London, 1797, 4to., price 21s., subsequent editions in 8vo. Mr. Johnstone executed his task most creditably, but the fallacious principle has long since vanished and claims no notice now. It is surprising that it was ever entertained at all.

CCLV.—Laurence, 1797.

John Laurence, a veterinary surgeon, published several professional works, and wrote "The modern Land-steward," "The farmer's pocket calendar," and "The new farmer's calendar." In the Modern Land-steward, the duties and functions of stewardship are considered and explained, with their several relations to the interests of the landlord, tenant, and the public. These works did not appear till ten years after the date now used, which marks the first appearance of the author in print.

The general treatise by this author, on animals, the ox, sheep, and swine, is an octavo volume of 639 pages, which contain a mass of varied information of the most useful kind. The book is dated in 1808, and was very favourably received; it is dedicated to Lord Somerville.

The Modern Land-steward is an octavo volume of 415 pages of very desultory matter, sensible enough, but most mixedly arranged. The author had a great facility of writing, and his language flowed most promiscuously. But everywhere, in the mass, there are displayed acute perception, shrewd ideas, and very enlightened views of the pertinent subjects which are treated.

The New Farmer's Calendar fills 554 octavo pages, and treats the business of each month of the year, and also every detail of practical farming. Like the former work, the matter is large and valuable, but much jumbled and mixed. The plan of a farmyard is given—elliptical, and each building forming a straight part of the general curvature. It is fanciful rather than useful, but shows an inventive talent in that way. The author possessed much varied knowledge, and a very lively imagination. Like other enthusiasts, he carried much too far his hobby of row culture, which has its limits along with other applications.

CCLVI.—Douglas, 1798.

Robert Douglas, D.D., was minister of Galashiels, in south of Scotland, and wrote "General view of the agriculture of the counties of Roxburgh and Selkirk, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" Edinburgh, 1798, 8vo.; London, 1802, 8vo. Maps of each county accompany these reports, which form an octavo volume of 378 pages, which has always been reckoned the best of the Scotch

reports. Figures of a plough, gate, and harrows are on the last page of the work.

CCLVII.—Dix, 1798.

William Spicer Dix, of Exeter, Devon, wrote "Remarks on the utility of a newly invented patent machine for clearing grain from the straw, instead of threshing it by the flail;" London, 1798, 4to., price 1s. This work occupies 15 quarto pages, with a drawing of the machine, which cleared corn from the ears by friction, without injuring the straw or the grain. One man did the work of ten by the flail, and more grain was procured. The work was done in the field, without ricking and thatching the grain. Similar plans have been devised, but none have succeeded, by reason of the straw and grain being inconveniently parted in too large a mass for preservation.

CCLVIII.—Fox, 1798.

William Fox, attorney at law, wrote "Remarks on various reports transmitted to the Board of Agriculture in the year 1794;" London, 1798, 4to. This work occupies 76 quarto pages of extracted remarks from several county reports. The author had selected well, and observed very acutely.

CCLIX.—Lawson, 1798.

Stephen Lawson, of London, wrote "Essay on the use of mixed and compressed cattle fodder, for feeding and fattening horses, oxen, cows, sheep, hogs, and pigs, adapted for young stock, and for horses and cattle on shipboard, in camps, or in garrisons, with useful tables, &c.; London, 1798, 8vo., 2s. 6d.

The work fills 88 octavo pages, in which the author laboured and failed to establish the superiority of mixed and compressed fodder over the single articles masticated by the animals. Such attempts may never succeed, being opposed to an ordination of nature.

CCLX.—Smith, 1798.

John Smith, D.D., minister at Campbellton, wrote "General view of the agriculture of the county of Argyll, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" Edinburgh, 1798, 8vo. This work fills 232 octavo pages, and has always been esteemed.

CCLXI.—Middleton, 1798.

John Middleton, Esq., land surveyor, London, of West Barns farm, Merton, and of Lambeth, Surrey, wrote "General view of the agriculture of the county of Middlesex, with observations on the means of its improvement, and several essays on agriculture in general; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1798, 8vo. This work constitutes an octavo volume of 597 pages, accompanied with a map of the county, coloured and neatly executed. General opinion has ever allowed this report to be the best of all the surveys of English counties, in quantity of matter, arrangement, and practical knowledge. The author wrote a very reputable essay in Nicholson's Journal: "Observations on the various kinds of manure;" and his name has always been favourably mentioned.

CCLXII.—Tatham, 1798.

William Tatham published several works on inland navigation and commercial subjects, and on courses of rivers. He wrote "National irrigation; or, the various methods of watering meadows, affording means to increase the population, wealth, and revenue of the kingdom, by an agricultural, commercial, and general economy in the use of water;" 1798, 8vo., price 8s. "Auxiliary remarks on an essay on the comparative advantages of oxen for tillage in competition with horses;" London, 1801, 8vo., price 1s. 6d. The last work is not found in the National Library; the first is an octavo volume of 427 pages, with drawings of the common forms of irrigation. The author advocates very justly and forcibly the use of water in all possible cases of application.

CCLXIII.—Priest, 1798.

The Rev. St. John Priest wrote "General view of the agriculture of Buckinghamshire, drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1798, 8vo., price 12s. The author was secretary to the Norfolk Agricultural Society, and compiled a very excellent report of 412 octavo pages, with a tabular appendix of the parishes of the county, extent, and value. The price of labour is given, poor rates, profits per acre, and the seed sown and produce of crops. This report is at the head of the useful list.

CCLXIV.—Lowe, 1798.

Robert Lowe, Esq., of O[illegible]n, wrote "General view of the agriculture o[illegible]nty of Nottingham, with observations on th[illegible] its improvement; drawn up for the cons[illegible] of the Board of Agriculture and internal [illegible]t;" London, 1798, 8vo., price 4s. Th[illegible]k [illegible]ntains 192 octavo pages, and possesses a [illegible] map of the county. The last part of the [illegible]lled with matter hardly relevant, or belong[illegible] [illegible]ultural information.

CCLXV.—Fenwick, 1798.

John Ralph Fenwick, M.D., wrote two essays: I. "Reflections on calcareous manures." II. "On elastic fluids in vegetation." The bulk is 26 octavo pages, being a part of the transactions of the Literary and Philosophical Society of Newcastle-upon-Tyne. The author trod the old path, and did not find a new road to any point.

CCLXVI.—Banister, 1799.

John Banister, Gent., of Horton Kirby, in Kent, wrote "A synopsis of Husbandry, being cursory observations on the several branches of rural economy, adduced from long and practical experience on a farm of considerable extent;" London, 1799, 8vo., price 7s. This book is not found in the libraries of the British Museum, and the above statement rests on the authority of the Bibliotheca Britannica and Loudon's list of authors.

CCLXVII.—Somerville, 1799.

Right Hon. John Lord Somerville wrote "Address to the Board of Agriculture on the subject of sheep and wool;" London, 1799, 8vo. "The system followed by the Board of Agriculture, with dissertations on the growth and produce of sheep and wool, as well Spanish as English; observations on the poor and poor-laws;" London, 1800, 4to., price 15s. "Facts and observations relative to sheep, wool, ploughs, and oxen, in which the importance of improving the short-woolled breeds by a mixture of the Merino breeds is deduced from actual practice; together with some remarks which have been derived from the use of salt;" London, 1803, 8vo., price 4s. New edition, 1809, 8s. "A treatise on hemp, including a comprehensive account of the best modes of cultivation and preparation as practised in Europe, Asia, and America; with observations on the sun plant of India, which may be introduced as a substitute for many of the purposes to which hemp is exclusively applied;" London, 1810, 4to., price 31s. 6d.

The Book of Facts and Observations is an octavo of 180 pages, in which useful matter is mixed with much irrelevancy. The author laboured in the cause of the double-furrow plough and of oxen being superior to horses for farmwork; two fallacies which might have struck the most obtuse observer. The first is a slow unwieldy operation, and requires much power; and in such work as ploughing, the frequency of the process surmounts the heavy movement; and in the case of oxen and horses, nature has decided the controversy in the muscular formation of the animals.

The System followed by the Board of Agriculture is an octavo book of 300 pages, relating to the facts and usages which the Society had collected and promulgated.

The Dissertations on Sheep and Wool is a quarto volume of 187 pages of the most useful matter which the author compiled. The book on hemp is not found in the National Library

The crotchets of the time Lord Somerville lived in—double furrow ploughs, oxen over horses, and Merino sheep—completely failed, and the reason of the two first failures have been mentioned. The Merino sheep could not be fattened in England, and as mutton is more valuable than the wool, that deficiency settled all further dispute. "Farewell reason, farewell discretion," says Sterne, "when a man has mounted the hobby of his fancy," and "circumstances govern everything in this world, for no man can govern them." From the inadvertence of controlling causes, and allowing a preconceived opinion to bar the entrance to every occurring consideration, are to be attributed the many blunders of theory, and the consequent neglect and disrepute.

Lord Somerville died in 1815 in Switzerland, on his way to Italy; was buried there, and afterwards disinterred and brought to England.

CCLXVIII.—Parkinson, 1799.

Richard Parkinson, of Doncaster, wrote "The experienced farmer, an entire new work, in which the whole system of agriculture, husbandry, and breeding of cattle, is explained, and copiously enlarged upon, and the best methods with the most recent improvements pointed out;" London, 1799, 2 vols., 8vo., price 21s. "A tour in America in 1798, 1799, and 1800; exhibiting sketches of society and manners, and a particular account of the American system of agriculture, with its recent improvement;" London, 1805, 2 vols., 8vo., price 15s. "The English practice of farming, exemplified in the management of a farm in Ireland—with an appendix; containing, first, a comparative estimate of the Irish and English mode of culture as to profit and use; and secondly, a regular rotation of crops for a period of six years;" London, 1806, 8vo., 9s. "Treatise on the breeding and management of live stock, comprising cattle, sheep, horses, asses, and pigs. To which are added—directions for making butter and cheese, curing hams, pickling pork and tongues, preserving eggs, &c.;" London, 1809, 2 vols., 8vo., price 24s. "Practical observations on gypsum as a manure;" London, 12mo., 1808. "General view of the agriculture of the county of Huntingdon, drawn up for the Board of Agriculture;" London, 1811, 8vo., 9s.

The Bibliotheca Britannica quotes the last mentioned work and omits the preceding one; Loudon's list of authors mentions the survey of Huntingdon

and omits the essay on Gypsum, which is found in the National Library, and the Survey is not found. The essay fills 121 pages of duodecimo size, and mentions at much length the qualities of gypsum, and the modes of its use. The results are large, as with all newly introduced articles of the kind. But the author is very guarded, and makes no very extravagant asseverations on the subject.

The English Practice of Agriculture exemplified in Ireland, is a volume of 338 octavo pages of the most useful matter that had yet appeared in the agricultural world. The statements evince the most correct practical knowledge, and in the easiest mode of intelligence. It appears that the author had farmed in Ireland, and was the actor of the operations on which the comparisons are made.

The Tour in America forms an octavo volume of 735 pages, which give a very interesting account of America, its soil and productions, population, and state of society.

The treatise on Live Stock is in two octavo volumes of 436 and 484 pages, describing the animals of the farm, the breeding and general management. The portraits of the animals are not very neat, but are true enough in the likeness, and the observations are most correct. The subject has never been better handled, nor more practically illustrated.

The Experienced Farmer is not found in the National Library, though it is always mentioned as the first of the author's works. But it may not have been the best on that account.

Parkinson has always been reckoned one of the best practical writers on agriculture to the time in which he lived, and our opinion thinks very justly. If the description of grain farming, which has not been found, corresponds with the volume on live stock, the palm of merit must be given to the author, without any hesitation, of the most enlightened practice that had been printed for the public use. In this view, the universal opinion coincides.

CCLXIX.—Darwin, 1800.

Erasmus Darwin, M.D., F.R.S., was born in 1731, at Elton, near Newark, in the county of Nottingham. He was educated for the medical profession at St. John's College, Cambridge, and at Edinburgh; and having taken the degree of doctor in medicine, he went to Lichfield, and there commenced his career of practice. He had much success, married twice, and had a large family, removed to Derby in 1781, and died in 1802, in the seventieth year of his age.

Our author was an early votary to poetry, but sent nothing into the world till 1781, when there appeared the "Botanic Garden," in which he celebrates the loves of the plants. In 1793, the author published "Zoonomia," or the laws of organic life, the second volume in 1796. In 1801, there appeared the "Phytologia," or the philosophy of agriculture and gardening; and soon after, a small tractate on female education.

Our purpose comprehends only one work of Darwin, the Phytologia, which is a quarto volume of 612 pages, in 3 parts—physiology of vegetation, economy of vegetation, agriculture and horticulture, with an appendix on the improved construction of the drill plough. The section on manures, or the food of plants, is the sole part that interests the agriculturist, and it is much too refined for the grossness of the farmer's application of the articles. No new fact was elicited and established, but much light was cast on the processes that had been adopted.

Darwin was a poetical philosopher of a high, if not of the highest, degree; he had a rich imagination, a most exuberant fancy, and reasoned from analogy till every string of connection was lost, and his creations stood alone, in an ideal world, without support, and without any approach to comprehension. Very many of his sophisms have ever passed for reveries; but future opinions have acceded pretty closely to some of his propositions, and have sanctioned the vagaries which in his own day appeared to be the most eccentric. The Zoonomia is wholly a medical production.

CCLXX.—Thomson, 1800.

Rev. John Thomson, D.D., minister of Markinch, wrote "General view of the agriculture of the county of Fife, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1800, 8vo. The work forms a volume of 423 octavo pages, with a map of the county, and several portraits of buildings and implements; an appendix contains the form of a lease of land, and a notice of an inland canal. The matter of the report is well arranged and very suitably described, the suggestions are moderate and quite tangible. The work always enjoyed a very deserved reputation.

CCLXXI.—Dalrymple, 1800.

William Dalrymple, Esq., wrote "A treatise on the culture of wheat;" London, 1800, 8vo, price 2s. The work occupies 68 pages, and treats of wheat on strong and light lands, the rotations of cropping, seed and sowing, and steeps or brines. The author seems to have been a practical farmer, and dated the preface of the book from Chessington. The ideas are not very enlightened, and are now far superseded.

CCLXXII.—Stacey, 1800.

Rev. Henry Peter Stacey, LL.D., F.L.S., wrote "Observations on the failure of the turnip crop, with proposals for a remedy, not altogether new, yet not fully considered by agricultural writers;" London, 1800, 8vo., price 1s. This statement appears in the Bibliotheca Britannica, and in Loudon's list of authors, but the book is not found in the libraries of the British Museum.

CCLXXIII.—Parry, 1800.

Caleb Hillier Parry, M.D., F.R.S., physician, Bath, wrote "Facts and observations, tending to show the practicability and advantage to the individual and the nation of producing in the British Isles clothing wool equal to that of Spain; together with some hints towards the management of fine-woolled sheep;" London, 1800, 8vo., price 4s. The work occupies 93 quarto pages of good reasoning on a favourite subject, which left wholly out of view the surrounding circumstances of the occupation. The author cultivated his own estate of land, and was a very plausible theorist.

CCLXXIV.—Tennant, 1800.

Smithson Tennant, Esq., F.R.S., &c., wrote "On the different sorts of lime used in agriculture;" Nich. Journal, iii, 440, 1800. The author was an amateur chemist of note, but the essay on limes was left in obscurity. It added nothing to the existing entertainments on the subject of these valuable bodies, which are yet but imperfectly known.

CCLXXV.—A Practical Farmer, 1801.

This name wrote "A treatise on the culture of potatoes, showing the best means of obtaining productive crops, a matter of national importance:" Launceston, 1801, 12mo., stitched. This essay contains 48 pages of duodecimo size, with the contents in 16 chapters—on the culture of potatoes; of seed; of the roots saved for seed; of an early crop; to have an early productive crop; of manure; of preparing the land if before in grass; of planting potatoes; for a late crop; of preserving a general crop during winter; for culinary or kitchen use; uses for small potatoes; horses; bullocks; pigs; to get pork at a cheap rate. The cultivation is done on the lazy bed system, and seems more adapted for cottier farmers than the extensive cultivator of land. In the most improved and scientific rotations of crops, potatoes do not follow grass, nor is the use of potatoes unknown in rearing cattle and pigs. But the author's opinion may be doubted, "that the gravy of beef fattened with potatoes, is richer than from any other substance." The nutritious quality of the potato does not uphold the superiority over other matters in rearing and fattening the animal frame.

CCLXXVI.—Hoyte, 1801.

Henry Hoyte, land surveyor, wrote "An essay on the conversion of soils, with observations and remarks on the breeding of sheep and other cattle;" London, 1801, 4to., price 2s. 6d. This statement is made by the Bibliotheca Britannica: the National Library does not contain the book.

CCLXXVII.—Heslop, 1801.

Rev. Luke Heslop, D.D., archdeacon of Bucks, and rector of Bothal, Northumberland, wrote "A comparative statement of food produced from arable and grass, and the returns arising from costs, &c.;" London, 1801, 4to., price 2s. The National Library does not contain this work; another essay is found on the "Duty of property," in which the author considers property and professions in being duly assessed.

CCLXXVIII.—A Farmer, 1802.

"Rural recreations" were written by "a farmer," being "the modern farmer's calendar and monthly instructor" illustrated with copper-plates; London, 8vo., 1802. The preface of this is signed by A.C.H., and dated at London, 20th March, 1802. The contents are in 128 octavo pages, and give instructions of the necessary work in every month of the year. The frontispiece is the design of a farmery in the shape of a cornered circle, of which the dwelling house forms the front; the other buildings join in the corners, and enclose the single yard, which serves all the purposes of manufacturing manure. The author's ideas on the plan of farm buildings are far behind the age in which he lived. The bed-rooms on the ground floor of a farmer's dwelling are a posterior entertainment to the year 1802. The items of cultivation are sensibly discussed and recommended, but nothing new is elicited or attempted to be issued.

CCLXXIX.—Bell, 1802.

Benjamin Bell, F.R.S.E., surgeon, Edinburgh, wrote "Essays on agriculture, with a plan for the speedy and general improvement of land in Great Britain:" Edinburgh, 1802, 8vo., price 9s. These essays are political, rather than practical, and propose to advance agriculture by giving bounties for growing potatoes and grains; rearing horses, cattle, sheep, and managing dairies; the use of manures of all kinds; cottages and gardens; plantations, and the generally best-managed farms. The sum expended to be about half-a-million yearly. The author writes very justly on the farmers having the means in their hands, and on diffusion of agricultural knowledge.

CCLXXX.—Bartley, 1802.

Nehemiah Bartley, Esq., secretary to the Bath Agricultural Society, wrote "Observations on the conversion of pasture land into tillage, and on using potatoes in manufacturing starch and feeding sheep;" London, 1802, 8vo., price 1s. 6d. This statement appears in the Bibliotheca Britannica, and in London's list of authors; but the book is not found in the National Library. Our research found another work of the author, which had escaped the two bibliographies now mentioned, being "A series of letters on fine clothing wool from Spanish rams and English ewes; with cursory remarks on the superiority of the smaller breeds of animals, the culture of the potato, and of the mangel wurzel plant, as winter and spring food for cattle, &c.;" London, 1802, 8vo., price 2s. The letters occupy 84 octavo pages, addressed by various persons to the Bath Society on the then engrossing topic of the Merino sheep. The last page contains an advertisement of the work that was first mentioned, "On the conversion of pasture land into tillage."

CCLXXXI. Findlater, 1802.

The Reverend Mr. Charles Findlater, minister of the parish of Newlands, in the county of Peebles, wrote "General view of the agriculture of the county of Peebles, with various suggestions as to the means both of the local and general improvement of agriculture;" Edinburgh, 1802, 8vo., price 7s. This work occupies 413 octavo pages, and is accompanied with a map of the county. The subject matter is well arranged and very judiciously related. The notes and appendix are very valuable on the social policy of the district and its regulations: the report has always been esteemed.

CCLXXXII. Alderson, 1802.

John Alderson, M.D., physician at Hull, wrote "On the improvement of poor soils, read in the Holderness Agricultural Society in answer to the following question What is the best method of cultivating and improving poor soils, where lime and manure cannot be had:" with an appendix and notes;" London, 1802, 8vo., price 2s.; second edition in 1807. The essay occupies 34 octavo pages, and places the necessary improvements to consist in mixing the various earths that are known to constitute fertility. The reasoning offers nothing new, and but slightly valuable.

CCLXXXIII. Tighe, 1802

William Tighe, Esq., M.P., wrote "Statistical summary of the county of Kilkenny, made in the years 1800 and 1801;" London, 1802, 8vo. A geological map of the county embellishes the work, which is a thick volume of 700 pages. The contents are very varied, agricultural, commercial, mineralogical, with many tables and acts of improvement. The reports are numerous, and mi ings of committees endless.

CCLXXXIII Garrard, 1802.

George Garrard wrote "A description of different varieties of oxen in the British isles, w engravings on an exact scale from nature;" fo price £5 5s., or coloured £10 10s. No notice this book or author has appeared, except in a bo seller's advertisement.

CCLXXXV. Wimpey, 1802.

R. Wimpey wrote "Rural improvements, essays on the most rational methods of improv estates;" London, 8vo., price 7s. An adverti ment only has made known this book and the thor's name.

CCLXXXVI. Munnings, 1803.

Rev. Thomas Crowe Munnings wrote "An count of some experiments for drilling and p ting turnips, in the years 1800, 1801, and 18 together with some miscellaneous observations agricultural subjects;" London, 1803, 8vo., pr 2s. 6d. The work occupies 84 octavo pages, a preserves turnips during winter, by removing e alternate drill of roots, and covering with the ea of a plough furrow the remaining rows. The p cess might have been told in one page.

CCLXXXVII.—Knapp, 1803.

J. L. Knapp, Esq., F.L.S. and A.S., wr "Gramina Britannica, or representations of British grasses, with remarks and occasional scriptions;" London, 1804, 4to. The work i quarto volume of 119 plates of grasses, the p traits of which are puny and badly executed b in the engraving and colouring. A page is prin opposite to each plant, containing the scient description, with some practical remarks. T price of the book was £8 8s.

CCLXXXVIII.—Plymley, 1803.

Joseph Plymley, M.A., Archdeacon of Sal wrote "General view of the agriculture of t county of Shropshire, with observations drawn for the consideration of the Board of Agricultu and internal improvement;" London, 1803, 8v price 7s. 6d. The work contains 366 octavo pag with a map of the county, and some drawings canal gates and locks. The book is a very credi ble production.

CCLXXXIX. Bowden, 1803.

Thomas Bowden wrote "The farmer's direct or compendium of English husbandry;" Londo 8vo., price 2s. An advertisement has only be

seen of this work; no list of books or authors contains the name.

CCXC.—Forsyth, 1804.

Robert Forsyth, Esq., Advocate, Edinburgh, author of "Elements of moral science," and other esteemed philosophical works, wrote "Principles and practice of agriculture systematically explained;" Edin., 1804, 2 vols., 8vo., price 21s. "Beauties of Scotland, containing a clear and full account of the agriculture, commerce, mines, and manufactures, of the population, cities, towns, and villages, &c., of each county, embellished with engravings;" Edin., 1809, 5 vols., 8vo., price 75s. This last work is found in the National Library, but the first is wanting; it was compiled from the fourth edition of the Encyclopædia Britannica, to which work the author had contributed. Agriculture occupies 250 pages of the first volume, and is embellished with many portraits of implements, of irrigation, and draining. The writing displays throughout much sound sense and a sober discretion, as in every work that was done by the author.

CCXCI.—Gray, 1804.

Andrew Grey, machinist, wrote "The experienced mill-wright, or a treatise on the construction of some of the most useful machines; to which is prefixed a short account of the general principles of mechanics, and of the mechanical powers, with the latest improvments;" Edin., 1804, 4to., price 35s. "Plough-wrights' assistant, or practical treatise on various implements employed in agriculture, illustrated with 16 engravings;" Edin., 1808, 8vo. "A treatise on spinning machinery;" Edin., 1809, 8vo., price 10s. 6d. The National Library contains only the "Plough-wright's assistant," which is an octavo volume of 220 pages, with many portraits of ploughs, harrows, cultivators, thrashing and drill machines. The author much excelled in the construction of ploughs of the swing kind, to be drawn by two horses; the mouldboard which he devised has not yet been surpassed by the very many subsequent modifications, and it yet forms the most preferable construction for the varied purposes of the turnip cultivation.

CCXCII.—Greaves, 1804.

William Greaves, agriculturist, of Sheffield, wrote "Treatise on natural and practical agriculture;" London, 1804, 8vo., price 12s. The work occupies 580 octavo pages, and treats on drilling crops, grass, turnips, fallow, ridging, smut, mildew, trees, and seeds. The author is most virulent against paring and burning, which he absolutely interdicts as a national curse. Many remarks are sensible and correct, but added nothing to the already existing practice.

CCXCIII.—Dickson, 1804.

R. W. Dickson, M.D., of Hindon, Middlesex, wrote "Practical agriculture, or a complete system of modern husbandry; with the methods of planting and the management of live stock, plates;" London, 1804, 2 vols., 4to., price 84s. "The farmer's companion, being a complete system of modern husbandry;" London, 1811, 8vo., price 42s. A monthly agricultural journal was edited by the author from July, 1807, to December 1808, and was then discontinued. The work on live stock has always been much reputed for sound and correct information. Dr. Dickson died in London in 1824. Loudon's list of authors gives another work, "An improved system of cattle management;" London, 1822, 2 vols., 4to. This work was drawn from the preceding one, that was quoted, and embodies the substance separately with additions.

CCXCIV.—Saunders, 1804.

J. Saunders wrote "Experimental essay on swine, containing hints on the best kinds, their habits; and on hay tea as an economical food for them;" 8vo., price 10s. 6d. Also "Essays on particular branches of agriculture and husbandry, pointing out several important improvements;" 8vo., price 10s. 6d. This statement has been advertised; the Bibliotheca Britannica quotes the work on swine, while the National Library contains neither the works nor the author's name.

CCXCV.—Loudon, 1806.

John Claudius Loudon was born in 1783, at Cambuslang, in Lanarkshire, in the west of Scotland. He was maternal cousin to Dr. Claudius Buchanan, whose labours in India are well known. Mr. Loudon was the eldest of a large family, whose father was a very respectable farmer at Kerse Hill, near Gogar, about five miles from Edinburgh. Our author very early showed an inclination for the natural sciences, and after receiving a fairly liberal education in Edinburgh, he resided with Mr. Dickson, a nurseryman and landscape designer in Leith Walk. He was a zealous student, and made much proficiency in various attempts of study.

In 1803, Mr. Loudon first arrived in London, and lost no time in making the suitable circle of acquaintance, and in beginning the profession of landscape gardener. He noticed and published upon laying out the public squares of London, and being introduced to Sir Joseph Banks, he became a member of the Linnean Society and met many scientific men, whose conversation much whetted the natural activity of his mind. The Earl of Mansfield employed him to alter and arrange the Palace Gardens at Scone, where the ideas occurred

to him of the first work he wrote, which will be afterwards mentioned as the first in the order of publication. At this time, the author was similarly employed by other proprietors. In 1803, he returned to London and pursued his professional labours: he removed into the country for the benefit of his health, and taking an interest in farming, his representations induced the removal of his father to Woodhall, near Harrow. A pamphlet from him on the improved rental of land procured a farm of 1,500 acres near Oxford, on which he established a sort of agricultural college. He did not reside long there, and finding himself worth £15,000 from his labours he resolved to visit foreign countries. In 1813, he went by Gottenburg, Memel, Konigsburg, Elbing, to Dantzic and hence to Berlin and Warsaw. Hence he visited St. Petersburgh and proceeded to Moscow, and found it in ruins from the general burning of 1812. Being in the rear of the French army, he was often suspected as a spy and occasionally bandied about. He proceeded by Cracow to Vienna, Prague, Dresden, and Leipsic, by Madgeburg to Hamburgh, whence the sea carried him to England.

During this long and interesting journey, Mr. London collected a mass of valuable information on gardens, palaces, and rural residences. He visited many scientific men, and was elected member of several learned bodies. It is curious that he did not publish his travels.

An unfortunate mercantile speculation having lost him nearly the whole of his pecuniary property, his mind still remained, and he showed himself to be a disciple of Seneca in being "externus rebus potentior." His philosophy did not forsake him; he fixed himself at Bayswater, resumed his labours, and began the arrangement of the "Encyclopedia of gardening." For this purpose, he travelled into France and Italy, visiting Pompeii and Herculaneum, and the wonders of that classic land. He returned by Venice, Padua, and Geneva, to Paris, Brussels, Ghent, Bruges, and Ostend, thence to England. In 1822, the fruits of his travels appeared in the first edition of the "Encyclopedia of gardening," and in 1825, there appeared the "Encyclopedia of agriculture." In 1826, he issued the "Gardener's magazine," the first periodical devoted exclusively to horticultural subjects. He again visited the continent of Europe, in the lower regions towards the German ocean, for the purpose of getting materials on the subject of agriculture. He married in 1830, and continued his labours and journeys over Britain in quest of any knowledge that could be seen or heard. He again visited France, for the purpose of examining some trees in the Jardin des Plantes, and remained two months. He laid out the plan of several arboretums; published several periodical works, "The book of cottage farm and villa architecture," "Encyclopedia of trees and shrubs," and lastly the great work, the "Arboretum." During the last ten years, his constitution had suffered from severe exertions both of mind and body, rheumatism had shattered the corporeal frame, but the former shone unsheathed. The lungs were at last affected, and showed proof that an ultimate recovery was impossible. He hastened to put his affairs in order, being entangled by a mortgage of his income from the published works to pay the expenses of issuing the Arboretum, and one of the creditors, the engraver, becoming a bankrupt, the assignees pushed Mr. London for payment, threatened an arrest, and to proclaim a bankruptcy. His honourable and sensitive mind most deeply felt the indignities offered him, reluctantly consented to other sacrifices in order to satisfy the clamour of importunate demands; and in the midst of doing so, he died in the arms of his wife in Dec., 1843; the confirmed disease was bronchitis. The debt was not long in being cleared by the sale of the remaining copies of the Arboretum, and in the final settlement honour was most honourably satisfied.

The works of Mr. London being numerous and valuable, a careful enumeration is required, and the publications are stated in the following arrangement, being the order and catalogue of the library of the British Museum. The strictly gardening works are omitted, as not belonging to our purpose.

"A treatise of forming and managing country residences;" 4to., London, 1806. "An account of the paper roof used at Tewlodge, Oxon;" 8vo., Oxon, 1811. "Designs for laying out farms and farm-buildings in the Scotch style, adapted for England;" 4to., London, 1811. "An encyclopedia of agriculture;" 8vo., London, 1825. "Supplement to it;" 8vo., London, 1844. "The encyclopedia of cottage, farm, and villa architecture and furniture;" 4to., London, 1833. "A supplement to it;" 1842. The horticultural works are more numerous and equally valuable.

A very large merit in the agricultural world must be ascribed to the works of Mr. London. The book of Cottage, Farm, and Villa Architecture contains a mass of information that is, in our opinion, unequalled of [illegible] kind, and on varied subjects which it con[illegible]. The materials were collected from every [illegible] could afford a mite of contribution, and [illegible]ted and arranged with much skill and [illegible]on. The encyclopedias of agriculture and [illegible] are alike valuable for the varied contents [illegible]ptable simplicity in writing was the cha[illegible]uality of Mr. London's professional em[illegible] very particularly excelled in putting [illegible]ting afloat in a

marketable condition the varied wares which he found the means of collecting and keeping in store. This quality is in many cases more useful than the flash of genius and the soarings of originality ; at least it reduces them into use.

Mr. Loudon was an indefatigable tradesman, and a most zealous promoter of every art and science that can employ the time or engage the attention of the human race. Quick in apprehension, he was equally cool in judgment; and his reflective discrimination seldom failed in reaching conclusions that were equally just and tangible. An equanimity of temper never at any time forsook him, and there is no better index of a mind being stored with learning and regulated by scientific liberality. Perhaps no man that ever lived had so thoroughly dispossessed his mind of any feeling of sect or self, or had more completely vindicated the right of persons or things to be heard and judged irrespectively of any adventitious attachments. His mind seemed a perfect specimen of primeval simplicity, and of the most comprehensive benevolence; an abundant charitable feeling pervaded every word and action. He was beloved in his domestic relations, and much esteemed in the circle of professional and general acquaintance; every person concurred in raising his statue while he lived. He erected his own monument. The writer of this biography never had any post or pension from him, which could bribe his opinion or bias his judgment; but he enjoyed for fifteen years his sincere and disinterested friendship, which was the greatest favour he had to bestow.

The present occasion must not be let slip of acknowledging the obligation of this biography to a list of British authors on agriculture compiled by Mr. Loudon, and printed in the end of the Encyclopædia of Agriculture. Lists are also given of the French, German, and Italian writers on rural affairs. These chronologies had cost immense research, and a vast labour, as are everywhere evinced by the works of Mr. Loudon.

CCXCVI.—Luccock, 1806.

John Luccock, woolstapler at Leeds, wrote "The nature and properties of wool illustrated, with a description of the English fleece;" London, 1806, 12mo., price 5s. 6d. "An essay on wool, containing an examination of the present growth of wool in every district throughout the kingdom, and the means pointed out for its improvement;" 1807, price 8s. 6d. These works are not found in the National Library: the above authority comes from the Bibliotheca Britannica, and Loudon's list of authors.

CCXCVII.—Somerville, 1806.

Robert Somerville, a surgeon in Haddington, wrote "General view of the agriculture of the county of East Lothian; drawn up from the papers of the late Robert Somerville;" London, 8vo., 1806. The author died in 1803. The report occupies 326 octavo pages, in eighteen chapters of well arranged and highly useful matter. A geological map accompanies the view of the county; and the appendix is long, containing analyses of various soils, extent of sea-coast, and thirlage. It is an excellent report, and contains the agreement between Fletcher of Salton and James Meikle, who was sent by the former into Holland to learn the art of sheeling barley; dated, 17th April, 1710. Fanning machines came from Holland about the same time.

CCXCVIII.—Aiton, 1806.

William Aiton, sheriff-substitute for the middle ward of Lanarkshire, wrote "Essay on the origin, qualities, and cultivation of moss-earth;" Glasgow, 1806, 8vo., price 3s. 6d. Ayr, 1811, 8vo. "General view of the agriculture of the county of Ayr, with observations on the means of its improvement;" Glasgow, 1811, 8vo., price 18s. "General view of the county of Bute, with observations on the means of its improvement;" with engravings; Glasgow, 1816, 8vo. None of the above works is found in the National Library, nor any notice of the author's name; the above statement comes from the Bibliotheca Britannica, and Loudon's list of authors. The author has always been reckoned a very sensible writer, enlightened, and at the same time practical in a degree beyond the usual understanding from persons of that grade of society. When this happens, the bests results do follow.

Our own private library by some means got possession of the "Essay on peat-moss," which is an octavo volume of 357 pages, with a long preface and a lengthy introduction. Very much room is occupied in discussing the quality of the modern and ancient climates of Britain, enquiring into the origin of peat-moss, describing the woody and grassy elements, and the future construction. The same related the improvements that have been done and the modes of procedure, the results and encouragement they afford. But the soils mentioned are not mosses, but moss-earths, and placed on a locality to which the means were accessible. Pure mosess are high in position, and in climates that defy the maturation of crops, and the consolidation does not sustain the implements or animals of work. And after all that has been written and spoken on the subject, the improvement of real moss may be safely pronounced to be an impossible performance; the nature of it forbids any culture.

CCXCIX.—Owen. 1806

Rev. T. Owen, M.A. rector of Ripton Scudamen,

Wilts, published "The three books of M. Terentius Varro, concerning agriculture, translated into English;" London, 1800, 8vo., price 5s. 6d. "Agricultural pursuits, translated from the Greek;" London, 1806, 2 vols., 8vo., price 15s. "Translation of the fourteen books of Palladius on agriculture;" London, 1807, 8vo., price 8s. The National Library contains only the first work of translation in the works of Varro, which is an octavo volume of 257 pages, with notes and references. The character of these translations has been that of honest performances.

CCC.—Capper, 1806.

James Capper, Esq., colonel in the East India Company's service, wrote "Observations on the cultivation of waste lands, addressed to the gentlemen and farmers of Glamorganshire;" London, 1806. "Meteorological and miscellaneous tracts applicable to navigation, gardening, and farming, with calendars of flora for Greece, France, England, and Sweden;" London, 1809, 8vo. The first work is wanting in the National Library; the second is an octavo volume of 211 pages, relating to different temperatures of air, aspects, storms and waterspouts, whirlwinds, and heights of the thermometer. But for the first mentioned work, which is not found, this author would not be ranged among agricultural writers.

CCCI.—Cochrane, 1806.

The Hon. and Rev. James Cochrane, Vicar of Mansfield, &c., wrote "Thoughts concerning the use of clay marl, as manure; on the uses of agricultural salts; on decomposing pit-coal, wood, peat, sods, and reeds for manure; also on coal tar, &c.;" London, 1806, 8vo., price 2s. The libraries of the British Museum do not contain this work, nor any notice of the author's name, and Loudon's list of writers does not mention it. The authority rests with the Bibliotheca Britannica, which makes the above statement, and quotes three short theological works by the author. A regret is due to the loss of any allusion to agriculture from an education that is superior to its own; the suggestions, if not at once thoroughly practical, often contain the germ of future utility.

CCCII.—Malcolm, 1806.

James Malcolm, land surveyor, wrote "A compendium of modern husbandry, principally written during the survey of the county of Surrey, in 1794, with an analysis of manures, an essay on timber, and a variety of miscellaneous subjects;" London, 1806, 3 vols., 8vo., price 36s. "Excursion, in the counties of Kent, Gloucester, Hereford, Monmouth, and Somerset, in the years 1802, '3, and '5;" London, 1805, 8vo., price 27s.

The Compendium of Modern Husbandry is a work of very considerable merit; the other book is not found in the National Library. The map of the county of Surrey is coloured into clay lands, loamy soils, sands, light sands, and red sands about Reigate. The geology is very deficient in wholly omitting the gault clay, which forms the black lands at Godstone, and is a rare specimen of that fossil. The professional employment of the author led him to travel and see many different practices, by which the mind is opened to instruction, and becomes habituated to strange entertainments. He had got over the prejudice about paring and burning, and gives on that subject a very just and dispassionate opinion. On most practical points, his judgment is generally correct, and when he differs, the reasons are stated with much candour and fairness. The work is the modern husbandry of South Britain only, and of that part of the district in which the author resided; it has little relation to modern husbandry north of the Thames. But of the southern range, the work is much the best to the time of its appearance.

CCCIII.—Batchelor, 1806.

Thomas Batchelor, farmer, wrote "General view of the agriculture of the county of Bedford; drawn up by order of the Board of Agriculture and internal Improvement;" London, 1806, 8vo., price 14s. in boards. This report fills 636 octavo pages, and is embellished with a map of the county, coloured in the different hundreds, and a portrait of Francis Duke of Bedford, known as the "farming duke." The contents of the work are well divided and arranged—geographical state; state of property; buildings; occupation; implements; enclosing; arable land; grass land; gardens and orchards; woods and plantations; wastes; improvements; live stock; rural economy; political economy; obstacles to improvement; miscellaneous articles; means of improvement; appendix. Under the head of arable land, the author treats very largely the crops of cultivation, in a number beyond the general notoriety; and under the head of improvements, the manures are handled in a very succinct and lucid manner. The implements exhibit all the useful tools, without any mixture of fancies or useless attachments, and the same may be said of the live stock. The author settles the point anent the working value of oxen and horses, by quoting the daily adoption of the latter animal in general practice. No better [illegible] of judgment can be got. Portraits are giv[illegible]hs, harrows, and scarifiers, and of a far[illegible]ing-house in the shape of an octagon. T[illegible] form of buildings prevails over any ot[illegible] venience, as fewer corners are made by t[illegible]han by any other

ciful formation. The outside walling is also re expensive, and the inside divisions are more number. A diversity of form relieves the eye, but advantage accompanies the deviation from the lare shape of houses. The author is not a very ong advocate for leases of land, and thinks that irly holdings create a familiar relation between dlord or tenant. But independence is lost; and hout that inestimable privilege, a human being nerely a passive agent; a dependence converts level familiarity into a sycophancy that is forced the circumstances.

Nothing is known of this author beyond his ne and professional employment, but he had dently been a superior person, judicious, en-ıtened, and practical. Such persons are the orators of any art.

The Bibliotheca Britannica ascribes to him "Vil-e scenes and other poems," 1804, 8vo., price 4s. n orthoëpical analysis of the English language, an essay on the nature of its simple and combined nds, the manner of their formation by the voice, an, &c.; the whole illustrated and exemplified the use of a new orthoëpical alphabet or univer-character. Designed for the use of provincial ools;" 1809, 8vo., price 7s. The writer of h works must have been much beyond a common ner, but no particulars are known.

CCCIV.—Clarke, 1806.

John Clarke wrote "An enquiry into the nature l value of landed and household property, rever-ıary interest in estates, and life annuities, with a iety of tables demonstrating the ratio of fines ı on the renewal of leases of church, college, and er estates, and for the purchase and sale of ies of every denomination;" London, 8vo., 1806. is book is not found in the National Library, l it may not be reckoned an agricultural pro-:tion; but it bears on the policy and connections :he art, and on that acconnt the name is included :he present biography. Loudon's list of authors s not mention the name, and the Bibliotheca Bri-nica is the authority of the use of the author and book.

CCCV.—Carpenter, 1806.

J. Carpenter, Worcestershire, wrote "A treatise practical and experimental agriculture;" Stour-dge, 1806, 2 vols., 8vo., price 21s. Neither the ok nor the name of this author is found in the aries of the British Museum; Loudon's list of hors does not contain the name, and the Biblio-ca Britannica is the sole authority for the above tement of publication.

CCCVI.—Smith, 1806.

Rev. Samuel Smith, minister of Borgue, wrote leneral view of the agriculture of Galloway, comprehending two counties, viz., Kirkcudbright and Wigtonshire, with observations on the means of their improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement, with several plates;" London, 1806, 8vo. This work comprehends 388 octavo pages in the following divisions—geographical state and circumstances; state of property; progress and general plan of husbandry; buildings; occupancy; enclosing; implements; arable land; grass lands; gardens and orchards; woods and plantations; wastes; improvements; embankments; live stock; rural economy; political economy; obstacles to improvement; conclusion; appendix. The map of each county is coloured in the soils of gravel or hazelly loams, heath, alluvial or carse, sandy, green mountains. It would have been preferable to have had the colours in the true geological characters, as these counties mostly lie on the argillaceous schistus, very much mixed with primitive uprisings, but with no higher rocks. The soils are very varied in the quality. The author is very sensible on the lease of land, and adopts a long rather than a short tenure; paring and burning of all rough ground is strongly recommended, the objections against the process are examined and completely refuted from practice. The Galloway cattle, the female progenitors of the short-horn breed, are very fully described; the good qualities are amply noticed, the deficiencies pointed out, and the remedies suggested, It is the best dissertation on the Galloway cattle that has ever appeared. Sheep are few in these counties, at least the improved sorts.

This report has always been reputed in Scotland, as one of the best of the many county views that were published. The shrewdness of the author, his discretion and practical sense, are evident in every page. The writing of the county surveys had very much improved since the general mass of reports in 1794, the deficiencies had been noticed, and when a request was afterwards conveyed, some instructions were sent with a wish to the observance. A gradual alteration is visible from the first commencement, and every year added to the amelioration of the books that were compiled. At the time of which we write, agriculture had reached a high improvement, in many instances not exceeded by the present time, though half-a-century in advance. Education had been very widely diffused, without which no art or practice can be advanced, or support the forward movement. The ground-work of society in the social circumstances had been rapidly improving by reason of the great stirrings of the human mind over the civilized world; movements engendered demands which required supplies, and to furnish them fresh inventions appeared, which led to multiplied exertions.

CCCVII.—Potts, 1806.

Thomas Potts wrote "The British Farmer's Cyclopædia, or complete agricultural dictionary, including every science or subject dependent or connected with improved modern husbandry, with 42 engravings;" London, 1806, 4to., price 73s. 6d. This author had escaped Loudon's list of writers, and the above work is not found in the National Library; the Bibliotheca Britannica makes the above statement from the title page of the book, which has been seen among the stalls of second-hand works. It is a thick quarto, with a richly vignetted title-page, and otherwise ornamented. The materials are disposed alphabetically, and very concisely handled in every subject that occurs for description. It is a great improvement on the lengthy descriptions of preceding works, and must have been much valued at the time of its appearance. On many points, modern practice has not yet advanced beyond this cyclopædia of farming.

No record is found of the author's social life. The Bibliotheca Britannica ascribes to him "A compendious law dictionary," and "A gazetteer of England and Wales," which last work only is found in the National Library. The writer may not have been a practical farmer, but an amateur who engaged his attention towards the collection and arrangement of the practical knowledge of agriculture. He added a large mite to the progress of the art.

CCCVIII.—Pearson, 1806.

George Pearson, M.D., F.R.S., senior physician to St. George's Hospital, lecturer on chemistry and on the theory and practice of medicine in London, wrote "Experiments and observations on the constituent parts of the potato root;" London, 1806, 8vo. "A communication to the Board of Agriculture on the use of green vitriol or sulphate of iron as a manure, and on the efficacy of paring and burning depending partly on oxide of iron;" Nicholson's Journal, vol. x., 1805. The first work is an essay of 10 quarto pages, containing 10 experiments on the composition of the potato, done by the desire of the Board of Agriculture, in which the well known contents were discovered. The author recommends the potato as food, on the grounds which are long ago known. The second work contains 13 octavo pages, wholly relating to salts of iron being converted into manures by the processes of cultivation, and by artificial preparation. The contents are mostly in letters addressed to the author from the country, where trials had been made with ashes of peat, coal, and vegetables. Ashes of all kinds are a well authenticated manure, and the quality will differ widely according to the natural constitution of the substances from which they are obtained. But generally speaking, the action of fire converts most substances into a fertilizing element, varying by reason of the constitutional matters.

CCCIX.—Lister, 1806.

W. Lister, farmer and engineer, wrote "Observations on the utility of cutting hay and straw, and bruising corn for feeding animals, elucidated by agricultural practice; with a description of the best machines for that purpose. Also a new discovery of the utmost importance to the agricultural world, by which may be separated the more nutritious sorts of straw for feeding animals from the refuse to be used as litter, with cuts;" 1806, 8vo. "A history of British implements and machinery applicable to agriculture, with observations on their improvement;" 1811, 4to., price 31s. 6d. None of these works nor the author's name are found in the National Library, and they are not mentioned in Loudon's list of authors. Though pompous announcements are generally found to be wanting, and lead to disappointment, yet curiosity is ever alive to discover anything that is promised, and continues after repeated misgivings in search. The author's new discovery of using straw may not have amounted to much worth, and the bare statement may have been the whole value, still eagerness grasps at promises, and seizes the shadow when the substance never comes. In the present case nothing can be said of this author, and the authority rests with the Bibliotheca Britannica.

CCCX.—Scott, 1806.

—— Scott wrote "Essay on the whole process of cultivating rape and cole seed on various soils, with plates;" 8vo., price 10s. 6d. This work does not anywhere occur except being advertised by a bookseller.

CCCXI.—Serle, 1806.

—— Serle wrote "On the management of landed property, as far as respects manor farms, mills, and timber;" 8vo., price 2s. 6d. No notice is found of this work except in a bookseller's advertisement.

CCCXII.—Ainslie, 1806.

John Ainslie, Engineer, wrote "Tables for computing the weight of hay, cattle, &c., by measurement;" London, 1806, 12mo., price 1s. 6d. "Treatise on land surveying, including a treatise on the theory, plates;" Edinburgh, 1812, 4to., 26s. The National Library contains only the book on land surveying, which has always been much esteemed and has been reprinted. The tables of measurement have had a very large circulation, and have never been surpassed by the many succeeding forms of estimating the weight of cattle by measure-

ment. The last-mentioned work has had but a slender appearance.

CCCXIII.—Holland, 1807.

Henry Holland, M.D., honorary member of the Geological Society, an eminent London physician, wrote "General view of the agriculture of Cheshire, drawn up for the Board of Agriculture;" London, 1807, 8vo., price 10s. "A sketch of the natural history of the Cheshire rock-salt district." Geol. Trans. i. 38. The report of Cheshire is an octavo volume of 375 pages, containing—geographical state; state of property; buildings; mode of occupation; implements; enclosing, gates, and fences; arable land; grass; gardens and orchards; improvements; live stock; rural economy; political economy; obstacles to improvement; miscellaneous observations; conclusion; means of improvement; appendix, Nos. i., ii., iii. The maps are—of the county, coloured in hundreds; of the minerals of Cheshire; section of the strata over the salt beds; of farm buildings; and of the roofing of the rock salt pit. The view of the county is written throughout with much ability and dispassionate judgment, the author combating most successfully the prejudice against paring and burning, and also against threshing machinery. The description of the salt mines and the working of the rocks is most interesting to the geological amateur and instructive to the general reader. The appendix is most valuable, in three articles—on the nature and origin of marl; on the origin of rock salt; on the use of sea mud as a manure. This report must have a high place among the county surveys.

CCCXIV.—Headrick, 1807.

Rev. James Headrick, minister of Dunichen, wrote "General view of the agriculture of the county of Angus or Forfarshire, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1807, 8vo., price 18s. The author was an excellent chemist, a good naturalist, and an agricultural philosopher. He wrote a large work "On the mineralogy, agriculture, manufactures, and fisheries of the Isle of Arran," which has enjoyed much repute. The survey of Angus-shire is an octavo volume of 590 pages, with an appendix containing 120 pages of closely printed small type. A map of the county is coloured in the distinctions of lakes or waters, carse clay, moor and mountain pasturage, soils chiefly alluvial or formed from decomposed whinstone, retentive subsoils, sandy downs or links, where the sand is generally blown into hills. The contents are in the following divisions—geographical state and circumstances; state of property; buildings; towns and villages; mode of occupation; implements and machinery; inclosures; arable lands; grass; gardens and orchards; woods and plantations; wastes; improvements; live stock; rural economy; political economy; miscellaneous observations; conclusion. The appendix contains eleven communications on various subjects, in the shape of letters, and of very useful information.

This is by far the most scientific of the reports of the Scotch counties, and it shows a knowledge of practice that is very corresponding to the more elevated performance. The geological mineralogy of the county is most interesting, as it forms a descent from the primitive Grampians to the old red sandstone which faces the waves of the ocean. The intermediate graduations are most amply described by the author, and the soils recumbent on the rocky beds from the granite to the sandstone. The author had collected a mass of the soundest information, and of the most correct practice; and on all doubtful points, as paring and burning lands and smut in wheat, he expresses his opinion with much discretion and becoming diffidence. The whole book shows a very superior mind, that was learned but not pedantic, and enlightened but not dogmatic. A long introduction and a lengthy appendix rather deface the work; but it was the fashion of the day, and the best writers had not surmounted the custom.

Our notice of writers now becomes more lengthy and minute, as the approach to present times has been made pretty near, and the circumstances are assimilated by which the social order was governed. The examination must be more close, and the enquiry more keen; and the opinion has to be equally comprehensive and discriminating. The extent of our subject dispels all literary vassalage; no obligation is due for favours conferred, no debt is owing for services that may be real or supposed, and no fealty remains unpaid. Hence our opinion is free and unfettered, bound by no ties, and manacled by no obligation. A single biography is ever a literary vassalship, undertaken to repay obligations and to extinguish the debt of favours bestowed. No freedom exists; but every idea must be praise and every line an echo of merit, whether it was real or accidental. Our biography is rid of this hindrance, and its removal shall be inviolate.

CCCXV.—Rudge, 1807.

Rev. Thomas Rudge, B.D., wrote "General view of the agriculture of the county of Gloucester, drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1807, 8vo., price 9s. The work fills 403 octavo pages, and is embellished with a finely coloured map, distinguishing the different soils as they are

found over the county. A map is given of canal navigation through the county, of some cottages and implements, and of drainage done by a wheel. The contents are—geographical state and circumstances; state of property; buildings; mode of occupation; implements; enclosing, fences, and gates; arable land; grass; gardens and orchards; woods and plantations; wastes; improvements; live stock; rural economy; political economy; obstacles to improvements; miscellaneous observations; means of improvement; appendix. Irrigation and the dairy are well treated in this report, as these articles are very prevalent in Gloucestershire; other subjects are very short in the description, as swine and horses, while the cattle and sheep receive a very proper allotment. The author wholly discards an introduction, and the appendix is curtailed to 26 pages. The work is a very respectable performance.

CCCXVI.—Renton, 1807.

George Renton, a Berwickshire farmer, wrote "The grazier's ready reckoner, or a useful guide for buying and selling cattle, being a complete set of tables, distinctly pointing out the weight of black cattle, sheep, or swine, from three to one hundred and thirty stones, by measurement; together with directions showing the particular parts where cattle are to be measured;" Berwick, 12mo., 1807, price 2s. 6d. The first edition appeared in 1801. These tables occupy 37 duodecimo pages, and are in columns of girth, length, weight. The correctness of the author's idea has never been disputed, and the accuracy of the tables has been well established.

CCCXVII.—Rennie, 1807.

Rev. Robert Rennie, D.D., F.A.S., Edinburgh, minister of Kilsyth, in the county of Stirling, wrote "Essays on the natural history and origin of peat moss, the peculiar qualities of that substance, the means of improving it as a soil, the methods of converting it into a manure, and other economical purposes to which it may be made subservient;" Edinburgh, 1807, 8vo., price 5s. The essays are nine in number, on ligneous plants; aquatic plants; the changes and combinations by which vegetable matter is converted into moss; the simple and compound substances that may be expected and are really found in peat moss; the alliance between peat, coal, and jet; the alliance between peat and other bituminous substances; on the distinguishing qualities of peat moss; on the sterility of moss in its natural state, and causes of it; on the different kinds and classification of peat moss. This work forms a thick octavo volume of 657 octavo pages, which contain a deep research and a most elaborate discussion on the subject of peat moss. There may not be doubted the opinions of its formation and the statement of its qualities; but on the subject of the cultivation of peat, there remains to be repeated the opinion that was expressed in the notice of the work of Mr. Aiton, "that moss, strictly so called, is beyond the reach of any cultivation; that the improvements that are related to have been performed, have been done on mossy earths that rest on a substratum near to the top, and capable of supporting the processes of culture; and that mossy substances are generally placed in latitudes too high to mature the fruits of utility." Rennie's work has much merit, but no result can follow in the way of cultivation.

CCCXVIII.—Robertson, 1808.

Henry Robertson, M.D., wrote "General view of the atmosphere, and its connection with the science of medicine and agriculture;" Edinburgh, 2 vols., 8vo., 1808, price 21s. "Description of a churn;" Thom. Annals of Philos., i, 451, 1813. The first work fills 406 octavo pages, and forms a most scientific and entertaining history of the atmosphere and its variations. The notices of heat and light are highly interesting, as are the articles on climate and vegetation. The work is far the best that has appeared on these points of agricultural connection. The language is simple, and open to any comprehension.

CCCXIX.—Barber, 1808.

William Barber, a London architect, wrote "Farm buildings, or rural economy—containing designs for cottages, farm houses, lodges, farmyards, &c., with appropriate scenery to each, 6 plates;" London, 4to., 1808, price 10s. 6d. "A description of the mode of building in Pisé;" 1808, 4to. The works of this author are not found in the National Library, but are mentioned as above in the Bibliotheca Britannica, and in Loudon's list of authors. The want of the farm designs may not be a great loss, six plates could not contain many plans; and architects have evershown a great deficiency in designing the accommodations of a farm, however skilful their art may be in the erection of walls and in forming doors and windows. An enlightened practice only is capable of promoting agriculture, and all similar arts that are mixed in their nature and varied in their performance. It has its own philosophy, and a peculiar adaptation.

CCCXX.—Watson, 1808.

Richard Watson, D.D. and F.R.S., was born in 1737, at Heversham, near Kendal, in Westmoreland, where his father, who was the younger son of a small landowner, had kept a grammar school since 1698. Our author was the youngest son, and received under his father's successor an education that was barely equal to the common grammatical

learning of the day. He was sent to Cambridge on an exhibition, and at that university he fought his way, by means of hard work and hard living, to the successive academical degrees and honours, and in 1764 he was elected Professor of Chemistry. In 1771 he was appointed Regius Professor of Divinity, and owed it, as well as his former appointment, to his indefatigable industry and the general opinion of his character. He was appointed to several church livings, and in 1782 he was made Bishop of Llandaff. He wrote many pamphlets, charges, and sermons on church matters, which showed his powerful intellect and original powers of mind. He spent the latter years of his life in retirement on his estate of Calgarth Park, in Westmoreland, which he amused himself in ornamenting and improving by building and planting. He died there in 1819.

In 1815, Watson published two octavo volumes under the title of "Miscellaneous tracts on religious, political, and agricultural subjects." In 1808, he communicated to the Board of Agriculture, "On planting and waste lands," and "Chemical essays," in several editions from 1757 to 1796. His other works are many in number. The chemical essays have always been reckoned cognate to agriculture by the manner in which the earths are treated, and also calcareous substances. The language is most peculiarly simple and easily understood. The communication on waste lands and planting is a strong recommendation, to improve all hilly waste grounds by making plantations of larch trees. The reasoning is very just, the proofs strong, and no doubt were fully evinced on the hills of Westmoreland and under a hyperborean climate. In all such situations, the question does not admit any doubt.

The Bishop of Llandaff possessed a vigorous intellect, and a very uncommon comprehensive grasp of mind. His agricultural notices are few and scarcely tangible; but his character is well known in connection with church government, Gibbon, and Paine.

CCCXXI.—Hood, 1808.

Thomas Sutton Hood, Esq., wrote "A treatise on gypsum, on its various uses, and its application as a manure;" 1808, 8vo., price 1s. 6d. The National Library does not possess this work, the above statement comes from the Bibliotheca Britannica and Loudon's list of writers. This author has been sometimes called "Sutton Thomas Wood."

CCCXXII.—Curwen, 1808.

John Christian Curwen, Esq., M.P., of Workington Hall, Cumberland, wrote "Hints on agricultural subjects, and on the best means of improving the condition of the labouring classes;" London, 8vo., 1808. "A tour in Ireland;" 2 vols., 8vo., 1819. The first work is a volume of 373 octavo pages, which treat four subjects—on steaming potatoes as a substitute for hay in feeding horses; on the means of supplying milk for the poor; on soiling cattle; and general hints on farming. An appendix is added on friendly societies. With regard to the substitution of potatoes for hay, the watery consistence of the root at once forbids the serious entertainment, though experience has shown the great value of the potato in being given as an additional meal to the working animals. Raw or steamed, the use is very beneficial in this way, both of the potato and the Swedish turnip. But as an entire substitute for either hay or corn, the authority must be doubted. The best means of supplying milk to the poor, is to give the article in part of wages, as is done in the border counties of Great Britain, by the keep of a cow throughout the year. To provide any articles for sale is wholly nugatory, unless the labouring population have money to buy them. The soiling of cattle seems less problematical; horses and cattle are very advantageously fed with cut food, in houses and yards, from lands that produce the crops to be mown; with sheep, and in the case of inferior lands, the matter is questionable where the crops to be used are not produced. The lands may be grazed, but not mown. The general hints on farming contain many good suggestions conveyed in a desultory manner. The appendix on friendly societies embodies a very friendly feeling.

The tour in Ireland fills two volumes, of 435 and 355 octavo pages each, written in a very plain and sensible way, and describing what had been done and what might still be performed. This tale is the cuckoo song of every visitor to Ireland, and in the midst of them the state of the country but slowly progresses.

Mr. Curwen's practical farming may have been fanciful and probably chimerical, and it advanced beyond sound theory, from want of practical experience on which to build a superstructure. But his writings do everywhere exhibit a very energetic activity of mind, an enlarged comprehension, and a most philanthropic benevolence. His reasoning is most just on the granting of leases of land; the proprietor gets his lands improved by other persons by granting the necessary security, just as the owners of building land get houses built on the grounds by other persons, by granting the necessary length of lease. In time the house comes to the owner of the land, and so do the improvements of land at the end of the lease.

CCCXXIII.—Beddoes, 1808.

Thomas Beddoes, M.D., born in Shropshire in

1760, died in 1808 at Bristol, where he practised as physician. He wrote "Good advice to husbandmen in harvest, and for all those who labour in hot berths, and for others who will take it in warm weather;" 1808, 8vo. "On the means of foretelling the character of the summer season, and the benefits to be expected from the cultivation of grasses which vegetate at low temperatures;" Nich. Journal, 1802. Neither of these works is found in the National Library, which possesses some medical works of the author, who enjoyed a very high professional reputation. The list of his books fills a column of the Bibliotheca Britannica.

CCCXXIV.—Bakewell, 1808.

Robert Bakewell, Esq., an eminent geologist and mineralogist, wrote "Influence of the soil and climate on wool, with an easy method of improving the quality of English clothing wool, and hints for the management of sheep, &c., with occasional notes and remarks by the Right Hon. Lord Somerville;" London, 1808, 8vo., price 6s. 6d. The author wrote several papers on geology and mineralogy, which appeared in the Transact. of the Geological Society, and the Philosn. Magazine. The book on wool forms an octavo volume of 157 pages, stating a very enlarged comprehension on the subject it embraces, and much practical knowledge of every management of sheep and wool. The author had been much engaged in the dealings of wool, and had made very acute and accurate observations on every point which came under his inspection. He shows the effect of the different treatments of the animal both on the quantity and quality of wool, and the recommendations given are marked by much discrimination and sober reflection. Notes are added by Lord Somerville, who is well known to have paid much attention to the article, and made it the chief subject of attention for many years. From these works, the practical man may derive many hints and suggestions that are applicable to practice, and to become most useful details.

CCCXXV.—Grahame, 1809.

James Grahame, advocate, and afterwards curate of Sedgefield, see of Durham, wrote "British Georgics;" London, 1809, 12mo. The author wrote several poems and historical dramas, and was a person of some distinction. The book in question is a duodecimo volume of 342 pages, describing in blank verse the works, customs, manners, and employments of the year in the twelve months of calendar division. It does not exhibit any particular system of husbandry; it assumes rather than instructs, and recommends the study of a science rather than teaching of it. The work embraces a mixed description, and is lavish on rural modes and manners; the poetry is both lame and tame, and never rises beyond a feebleness of conception, and a descriptive halt. The portion of practical knowledge is very minute, with incidental notices of the new introductions. The notes added to each month of the year are curious and valuable to the amateur of fire-side tales and cottage stories. The book had gone into two editions, one in London, another in Edinburgh; but it had never reached any public notice, or had met with moderate approbation. The fancy of Thomson is required to enliven the dull and tiresome monotony of description, even if it be the theme of silly aspirations and low occupations.

CCCXXVI.—Tibbs, 1809.

Thomas Tibbs, farmer, wrote "The Experimental Farmer;" 1809, 8vo., price 6s. This book is not found in the National Library; the above statement is found in the Bibliotheca Britannica, and in London's list of authors. Such a work as the former could not well give the authority of its insertions; but the private compilation of individuals might very conveniently satisfy the public, as to whence the information was drawn that led to the use of the name of an author. Our list gives this name on the two authorities above-mentioned, though not sanctioned by the National Library. Extensive as is the collection of that repository of books, yet *every* work that has been published is not found in it. And notwithstanding the very special enactment of the Copy-right Act, a copy of *each* book that is *now* published is not sent to its archives. The neglect is very injurious, as books get out of print and are lost in remembrance. Many agricultural works have been lost in that way, and stalls and private libraries occasionally show books that are not found in the National Libraries, owing to a copy not having been lodged there by the first issue.

CCCXXVII.—Wagstaffe, 1809.

Mr. Wagstaffe wrote "On reclaiming waste land;" Nicholson's Journal, xxiii., 95, 1809. This essay occupies but three octavo pages in the form of a letter, dated by the author from Norwich. There is detailed the mode of improving some waste lands of a peculiar nature and position, which was done by opening ditches, and plantings of willow and osier. The essay scarcely deserves the notice of agriculture, and is accompanied with similar communications in the same journal on the subject which it treats. Waste lands, being differently situated, require varied applications to bring them into cultivated use.

CCCXXVIII.—Wade, 1809.

Walter Wade, Esq., M.L.S., wrote "Lectures on

the meadow and pasture grasses, at the Dublin Society's Botanical Garden; and the artificial and sown grasses, as lucerne, sainfoin, clovers, trefoils, vetches, &c. These lectures occupy 106 octavo pages, and possess much merit. The scientific and classified distinctions of the plants are most accurately stated, and the natural properties given. The cultivated value of each plant is most correctly detailed, and seems to have been obtained from the best authorities on the subject. The writer seems to be unknown in the scientific and practical world; his writings are confined to the essays now mentioned, which are very sufficient to place his name in at least the second niche of the temple of agricultural fame.

The author was an educated person; a physician, and professor of botany to the Royal College of Surgeons in Dublin, and member of several societies. In the present case, the scientific botany is accompanied with the practice necessary to make it acceptable to general use, and to induce the examination of the productions. Vulgar minds recoil from scientific dryness, which explains no object, and imparts no better performance. When both qualities are joined, the merits of the work are inestimable.

CCCXXIX.—Meyrick, 1809.

Samuel Rush Meyrick, LL.D., of Queen's College, Oxford, wrote "The history and antiquities of the county of Cardigan, with the mineralogical and agricultural state of the country;" London, 8vo., 1809, price 4s. The book is a quarto volume of nearly 600 pages, embellished with many engravings and printed memorials. It seems a very comprehensive history, and embraces everything that can possibly occur to the observation when contemplating a country to be described. The agricultural improvements are related, the wants pointed out, and the adoptions suggested. The work has enjoyed much notice.

CCCXXX.—Sebright, 1809.

Sir John Saunders Sebright, Bart., M.P. for Hertfordshire, wrote "The art of improving the breeds of domestic animals;" London, 1809, 8vo., price 2s. 6d. The book is an octavo of 31 pages, in form of a letter addressed to Sir Joseph Banks. The ideas on this very important point are the same with the most enlightened opinion of the present time; the author condemns breeding in-and-in, and recommends the adoption of sexual intercourse with much judgment and becoming diffidence. If the author had not practised, he had done much more; he had framed in his mind an ideal performance, which is often more correct than any process that can be done. Being committed to paper, it leads to advancement.

CCCXXXI.—Coventry, 1809.

Andrew Coventry, M.D., was professor of agriculture in the University of Edinburgh. He was a learned, ingenious, and benevolent man; cultivated his own estate in Kinross-shire, and was extensively employed as a land valuer, and rural counseller. He died in 1830.

Dr. Coventry wrote "Discourse explanatory of the nature and plan of a course of lectures on agriculture and rural economy;" Edinburgh, 8vo. "Observations on live stock, in a letter to Henry Clive, Esq.;" Edinburgh, 8vo. "Notes on the culture and cropping of arable land;" Edinburgh, 1812, 8vo. The professional life of the author was distinguished by much sound information, and a very discreet judgment.

CCCXXXII.—Stevenson, 1809.

W. Stevenson, Esq., M.A., wrote "General view of the agriculture of the county of Surrey;" London, 8vo., 1809. Mr. Loudon calls this person—librarian to the Treasury, author of various works, and a writer in the principal encyclopædias, and states his death in 1829.

The Bibliotheca Britannica attributes the above work to two persons, W. Stevenson and William Stephenson, land surveyor, who also wrote "A system of land surveying in 1805." The King's Library in the British Museum gives to William Stevenson, land surveyor, "The agricultural report of Surrey," and also "of the county of Dorset in 1812, which last work is not mentioned in any list of authors or books. The different spelling of the name may have caused some confusion; our list gives the authorities, and looks to the author in the two reports of Surrey and Dorset.

The author writes his name "William Stevenson" without any appendage, so that the uncertainty remains if he be the librarian of the Treasury, or the land surveyor. There is no dedication or preface, from which some information might be gleaned of the identity of the person. The survey of Surrey is an octavo volume of 607 pages, with a map of the county, coloured in the different soils of calcareous loam, sandy loam, strong loam, clay of the weald, black land; the chalk hills are not coloured. All the details of common agriculture are very lucidly and concisely related, and also the peculiarities of the county which is described, of which the short leases are very justly reprobated as an obstacle to improvements. The survey is a very creditable performance, and practical beyond scientific.

The report of the county of Dorset is a volume of 487 octavo pages, with a map of the shire coloured in the soils of clay, sand, chalk, and strong chalk. In a short preface, the author states that the most part of the materials was compiled by Mr. Bachelor

in 1810, and afterwards consigned to him in order to make additions to be the more complete. The date is at Chelsea, in 1812. The work is more varied than the report of Surrey, and contains a greater quantity of matter more densely expressed. The appendix contains a valuable paper on the geology of Dorsetshire, which is very interesting from the intermingling of chalk and clay in very varied modifications, the oolite limestone and Kimmeridge coal. Both reports show a very superior professional information and judgment.

CCCXXXIII.—Dutton, 1809.

Hely Dutton, Esq., landscape gardener, wrote "Statistical and agricultural surveys of the counties of Clare and Galway;" Dublin, 1809 and 1814, 8vo., drawn up by direction of the Dublin Society. The condition and usages of these remote and benighted parts of Ireland are very sensibly delineated by the author, who seems to have well known the statistics and circumstances which required the representation.

CCCXXXIV.—Farish, 1809.

John Farish, Dumfries, wrote "A treatise on florin grass, with a short description of its nature and properties; together with the soils and manures best adapted to its culture, and the advantages to be derived from this valuable grass;" 1809, 8vo., price 2s. The National Library does not contain this work: the authority rests with the Bibliotheca Britannica and Loudon's list of authors. No other work is attributed to this author, whose ideas of practice on the subject of florin grass might probably have been worth being examined and recorded They had not upheld the use of the plant.

CCCXXXV.—Mackenzie, 1809.

Sir George Stewart Mackenzie, Bart., F.R.SS., London and Edinburgh, wrote "A treatise on the diseases and management of sheep, with introductory remarks on their anatomical structure; and an appendix containing documents exhibiting the value of the Merino breed of sheep, and their progress in Scotland:" London, 1809, 8vo., price 7s. 6d. "General view of the agriculture of the counties of Ross and Cromarty, drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1813, 8vo., price 9s. This last work had escaped the notice of the Bibliotheca Britannica; it is an octavo volume of 353 pages, in 15 chapters of useful divisions. The climate, soil, and productions of these northern counties are well described, with the means and obstacles of improvement. The map of the counties is a meagre production, plain, with lines and skirted edges.

The treatise on sheep fills 180 pages, and displays much skill in the objects of description. The was a scientific gentleman of very consi notoriety, who wrote on several subjects of vated nature, in all which his knowledge an were very commendable. He had imbib mania of the Spanish sheep, and thought to ov what nature has ordained; the animal co be fattened in this country with the pro advantage of the native breeds, and this def soon settled the point in a country, as Engl flesh-eating notoriety.

CCCXXXVI.—Sugar, 1809.

"The use of sugar in feeding cattle" wa lished in 1809, by John Harding, St. James The author is not known; the dedication is John Sinclair. Experiments are quoted of b fattened with molasses, which were rewarde a prize. The author's ideas are no romance mere, but a very feasible entertainment undertaking, when a social revolution perm fruits of all climes to be used in freedom burden of value that is imposed by mon and restricts the legitimate appropriation. is diffused in nature, almost beyond any article of composition, and thence may be ga the value of its quality. The book fills 120 octavo, of very sound writing.

CCCXXXVII.—Bowden, 1809.

Thomas Bowden wrote "The Farmer's Di or compendium of English husbandry;" price 2s. A bookseller's advertisement only the notice of this work; it is not found Bibliotheca Britannica, nor in the Nation brary.

CCCXXXVIII.—Price, 1809.

Daniel Price of Appledore, Kent, wrote a dicated to Sir John Sinclair, Bart., M.P., "A of sheep grazing and management, as practi Romney Marsh, illustrated with plates;" L 1809, price 2 guineas in boards. A very plai of the marshes faces the title-page, and the volume contains twelve chapters, and 480 p letter-press. The author enters largely in natural history of the sheep; varieties, and di habits; the breeding and selection, the an and practical management. The profits of fat lands, stocking of fields, and the size of enclo fill an entire chapter; with rules for young gr and on artificial food. The monthly manag of sheep in the marshes is described over t tire year, and the four last chapters contain m laneous matters of a very useful nature. author advocates a grazing college, in which and confirm all suggestions relating to an grasses as food, wool, and diseases; cows fo

and for beef, rearing of calves, swine, &c. The circular plan is given of an experimental farm, divided into many fields of 1 to 8 acres for the special purposes. A square plan is given that is similarly divided. The two last chapters treat the diseases of sheep.

This work is not clearly arranged, nor scientifically detailed; but it contains a large mass of useful matter heaped together, without rule or appropriate position. The practice is not forward, nor leads any advance.

CCCXXXIX.—Edgworth, 1810.

Richard Lovell Edgworth, Esq., F.R.S., and M.R.I.A., civil engineer, residing at Edgworth Town, Ireland, wrote "An essay on the construction of roads and carriages;" London, 1810, 8vo., price 14s. The work occupies 171 octavo pages, with portraits of carriages and the applications of draught. The directions for making roads are very sensible and enlightened, and put forth the practised modes of the present day. The author was father of the well-known Maria Edgworth, whose tales have enjoyed a much superior celebrity to the wheels and carriages of the father. The purposes, though distinct, have vied in utility.

CCCXL.—Kerr, 1810.

Robert Kerr, surgeon, F.R., and A.S.S., Edinburgh; an excellent naturalist and general scholar, died in 1814. He wrote "Statistical, agricultural, and political survey of Berwickshire;" 1809, 8vo., price 13s. This work is not found in the National Library, though it contains the professional and general works of the author; the authority comes from the Bibliotheca Britannica and Loudon's list of authors. Private opinion has reckoned this work to be a valuable production, and very explanatory of one of the first farming counties in Scotland. The author was a person of general eminence.

CCCXLI.—Williamson, 1810.

Captain Thomas Williamson, upwards of twenty years in Bengal, wrote "Agricultural mechanism; or a display of the several properties and powers of the vehicles, implements, and machinery connected with husbandry;" London, 1810, 8vo., price 10s. 6d. The National Library does not contain this work, though there are found the other works of the author on oriental subjects. It is a matter of regret that publishers are not more punctual in sending a copy of every book to be preserved for future examination; the author's ideas may have been worth looking at, and probably of being recorded, though they may not have held out any new benefit.

CCCXLII.—Adams, 1810.

George Adams wrote "A new system of agriculture and feeding stock;" London, 1810, 8vo., price 10s. 6d. Intended chiefly to recommend patent portable beast houses and sheep cots. This treatise comprehends twenty-nine octavo pages, directing the performance of his new system of agriculture, which implies the consuming of all green crops on the ground by cattle and sheep. The beasts are tied to a manger under a roofed moveable shed, which is removed as wanted by running on a cast-iron railway, which is lifted at pleasure. The author had been a practical farmer for twenty-six years, and the treatise is the result of his practical knowledge.

Our professional propensity inclines to such practical observations more than to useless dissertations on carbon and hydrogen, salts and acids. And something similar to the above system had occurred to our reflection before the treatise now mentioned had been seen. It seems very possible to consume all green crops on the ground by cattle and sheep, the latter in loose confinement under moveable sheds of timber, and the beasts tied to a manger which is part of a moveable timber shed. Cast-iron rails placed in trenches are run upon by the wheels of the sheds, which are in a longitudinal direction, as the growing food is consumed. The roof of the shed covers a feeder's walk, by which the food is introduced and placed in the manger. The litter is cut straws from the farm yard, which is used in quantity to keep the animals comfortable. The land will be enriched by urine, solid excrements, and straws, all puddled into a very intimate commixture, which will be much assisted by the covering of the ground by the roof of the shed, protecting it from wasteful influences, and by being breathed upon and warmed by the respirations of the animals. This idea extends beyond the author's assumption: but the treatise shows the road, and paves the way to some valuable alteration in the use of root crops. No notice is remembered of the present book, the author, or his theory, or rather theoretical practice; our research found it in an octavo volume composed of similar short treatises, which had never walked into notice, but crept into a shelf in an associated form. Such works are often more valuable than huge quartos and unwieldy octavos.

CCCXLIII.—Hunt, 1810.

Charles Henry Hunt, Esq., wrote "A practical treatise on the Merino and Anglo-merino breeds of sheep; in which the advantages to the farmer and grazier, peculiar to their breeds, are clearly demonstrated;" London, 1809, 8vo., price 6s. 6d. The work fills 198 pages in five chapters, consisting

chiefly in letters from persons who had so far succeeded in the use of Merino sheep. A lengthened description is given of Merino animals, and many arguments are adduced to show the advantages of the breed being introduced into Britain. But all the arguments and illustrations that were offered fell before the great stroke of practical experience, and the question seems now to be settled for ever.

CCCXLIV. Drury, 1810.

Charles Drury, Mansfield, late farmer, wrote "Recent and important national discoveries, exhibiting a system of preparing corn, straw, turnips, &c., &c., for the better, cheaper, and more expeditious feeding of horses, beasts, sheep, and pigs; improving land, causing a great saving of corn, hay, and potatoes; fattening stock much sooner, and considerably increasing their weight;" London, 1810, 8vo. This splendid title-page adorns 36 octavo pages, which prepare food for animals by boiling, steaming, and chaffing of hays and straws, and recommend turnips to be boiled, pulped, and mixed with meals of oats and beans, and with cut straws. It may be suspected that after any preparation of straws, the original quality of straw will remain, and turnips and potatoes in a raw state are equally if not more agreeable to animals than the boiled or steamed condition. The work of the author was republished in 1815 in an octavo volume of 200 pages, with the addition of the manuring of all fallows, so as to grow great crops of wheat, &c., at little or no expense, feeding the straw beast fat in winter, and keeping double the number. No doubt that swine are much benefited by cooked food; but to feed oxen on boiled straw and meals, may be more doubtful. The author enlarges on the use of boiling, and asserts that three heads of cattle for one may be kept by using that preparation, and urges that cut straws, grass, and clovers be all boiled together. Calves are reared without milk, with the liquor of hay and turnips boiled together, mixed with oatmeal and salt. This drink will but little equal the milk of the dam in point of nutriment. Dogs and poultry are fed on boiled meats. The manuring of land is done by eating the crops with sheep, and by folding the animals on the fallow grounds. Tabular forms are given of the rotations of cropping. Urine as a manure is much commended. The four concluding pages are devoted to the ploughing of land with beasts, which the author thinks are preferable to horses, at least in some purposes. But general purposes compose the requirements of the farmer, and the horse is most generally useful.

This author had been a person of fruitful ideas, but puny and meagre, and had not a large group of original conceptions. The range [illegible] which can wander beyond the visible horizo frame a world for itself. Such minds are they do exist.

CCCXLV.—Grigg, 1810.

Thomas Grigg, Esq., wrote "A statemen system in which a farm is managed in H shire, without fallow, being heavy land, and to wetness, and slightly calcareous." O soils, the author discarded the naked fallow land, and produced turnips; wherever t crop *can be grown*, the difficulty vanish the occurrence is an every day performanc farm in question was again returned to a fallow, as the pulverization of the soil that w and could be effected by the turnip crop equal to the fallowing during summer, and keep the land in the same good condition fault arose from the soil being clayey and t beyond the power of the turnip preparation the proper state.

CCCXLVI. The Practical Norfol Man, 1810.

This name wrote "The practical Norfoll describing the management of a farm thr the year, with observations founded on expe London, 1810, 8vo. The work contains 14 pages, divided into the twelve months of The dedication is to Thomas William Col and the book is wholly a Norfolk thing, excellent article on leases, which was the improving that county. Each month of is arranged to contain the due portion of tem of farming, beginning in September sowing of turnips, winter vetches, wheat, for spring feed and for seed. The work is cribed, and shows a thorough practical k of Norfolk farming.

CCCXLVII. Maddock, 1810.

James Maddock, florist, wrote "The Directory; with a supplementary dissert soils and manures;" London, 8vo., 181 essay occupies 30 pages, and treats cla gravel, calcareous and absorbent earths, substances, metallic substances, and sal statements are short and sensible.

CCCXLVIII. Williamson, 181

C. Williamson wrote "General Dictio Agriculture, gardening, and planting;" 2 v price 10s. This statement appears in an a ment; but no catalogue of books or list o mentions the name. The author may b Captain Williamson, who has been mentio this is only a surmise.

CCCXLIX. Morley, 1811

John Morley, of Blackline, in the county

folk, farming bailiff to the Hon. W. Assheton, Harford, wrote "Cheap and profitable manure, or plain and easy directions for preparing, and method of using, an excellent compost for manuring arable, meadow, and pasture lands in general. To which is added his much approved plan of damping muck, whereby a considerable expense is saved to the farmer; and also the manner of improving the growth of underwoods in the most luxuriant way;" London, 1811, 8vo., price 7s. The work fills 72 octavo pages, and the title-page of the second edition nearly equals the whole book, which treats in a very short way—preparing and manuring lands for wheat; preparing dung for turnips; dressing pasture lands and new layers; damping dung; lime; grazing lands; arable grounds; manures for each; turnips; underwoods; hints to graziers. The underwoods are improved by bending into the ground the pliable stems, and fastening by a peg the notched branch. Shoots rise from the point of insertion, and one best stem being left, a tree of some kind is produced. The ideas of this author are very simply practical, and not far-sighted.

CCCL.—Worgan, 1811.

G. B. Worgan wrote "General view of the agriculture of the county of Cornwall, drawn up and published by order of the Board of Agriculture and Internal Improvement;" London, 1811, 8vo., price 12s. The report occupies 182 octavo pages, with a map of the soils of Cornwall, some drained grounds, fences, implements, cottages, farm offices, and front elevations. The portraits of swine and a Devon bull are complete caricatures. The author dates the preface from Bodmin.

The contents of the book are of the usual nature, and seem sufficiently executed for the purpose. The appendix is of three articles—on spring wheat, copse woods, and an old address to the inhabitants.

CCCLI.—Davies, 1811.

Walter Davies, A.M., rector of Manafon in Montgomeryshire, wrote "General view of the agriculture of North Wales, containing the counties of Anglesey, Carnarvon, Denbigh, Flint, Merioneth, and Montgomery; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1811, 8vo., price 12s. The work occupies 510 octavo pages, with a neatly coloured map of North Wales, designs of cottages and cottage gardens, and of lead ore mines. The description is very ample of the mountains and mines of the primitive Cambria, with the varied soils and surfaces of the vales, hills, and mountains.

The cattle and sheep of the different counties are very well described, and the peculiar adaptation most truly stated. The horses and ponies are well exhibited in the native garb of quickness and utility, and the swine are shown to be defective. Poultry, bees, and rabbits are not much found in Wales, at least, in excellence. The labour, servants, and poor are very properly described, with the obstacles to, and means of, general improvement. The appendix is long, containing letters upon various subjects, from persons connected with Welsh affairs.

The report exhibits much sound information, and an acute judgment on every point of discussion. It has always been esteemed, and recommended as a source whence information may be got.

CCCLII.—Gooch, 1811.

Rev. W. Gooch, A.B., wrote "General view of the agriculture of the county of Cambridge; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 1811, 8vo., price 9s. The report occupies 301 octavo pages, with a map of the county, coloured in the various soils of ground. The work is very neatly performed and in a superior manner. The author shows a very liberal spirit on agricultural policy, and much sound knowledge on practical subjects. Maps are given of the new cuts for the waters of the fens, showing the new courses of the rivers with the old beds. The descriptions are very interesting of the improvements made in the alluvial districts. A chapter of miscellaneous observations concludes the report, which is one of the best of the kind.

CCCLIII.—Smith, 1811.

William Smith, engineer and mineralogist, wrote "The improvement of boggy land by irrigation, as carried into effect by him;" London, 8vo. "Observations on the utility, form, and management of water meadows, and the draining and irrigating peat bogs; with an account of Prisley bog, and other extraordinary improvements conducted for the Duke of Bedford;" London, 1811, 8vo., price 8s.

The above works are not found in the National Library, which contains only one or two of the author's geological productions. The Bibliotheca Britannica quotes the two works mentioned above, and no more; Loudon mentions Geological County Maps, Geological Map of England and Wales, and Genealogical Table of British Organized Fossils. There seems a misunderstanding among the authorities in respect of the works of this author, who was a person of very extraordinary exertion and merit, and was the first to propose and execute the geological maps of kingdoms and counties.

CCCLIV.—Farey, 1811.

John Farey, sen., mineral surveyor, wrote "General view of the agriculture and minerals of Der-

byshire, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 3 vols., 8vo. The first volume contains the account of geological formations only; the second is devoted to the state and conditions of property and general improvements; and the third relates the operations of husbandry, with the plants, animals, and implements that are used. The illustrations are a plain and geological map of the county, and of faults and dislocations, implements and buildings. The maps are on a small scale, and very indistinct. The survey is full thrice the bulk of any other county report, and contains a very valuable mass of information on the geology of Derbyshire, which is one of the most interesting counties in Britain to the geognost. The author's labours were directed to the mineral stratification, and he enters little into the general geognosy of the district, and in respect of the relative position with other divisions of the kingdom. Lime is there best exhibited in the primitive formations, and gypsum exists in the various modifications of the deposit. South Derbyshire is rich in marly sandstones, and the north part of the county is primitive in a large sense of the term. The interventions between these extremes are most curious and interesting.

CCCLV.—Keith, 1811.

George Skene Keith, D.D., minister of Keithall and Kinkell, wrote "General view of the agriculture of Aberdeenshire; drawn up under the direction of the Board of Agriculture, illustrated with plates;" Aberdeen, 1811, 8vo. This report fills an octavo volume of 672 pages, with a map of the county, coloured in the various soils of clay, good loam, gravelly loam, inferior, various, heath, and barren. Portraits are given of several houses of noblemen, of the old abbey of Deer, and of farm buildings. The author of this report was a learned person, and very much superior to the parish clergymen of the north of Scotland, who are educated in a routine prescribed by the rules of becoming a pastor of the church, and have little knowledge beyond the ginhorse tract of that formula. In this view of the county, the state of the district is well described, and the varied relations observed. The divisions of the county are separately described, and ancient memorials very inquisitively divulged. The customs of the country have a large description, the advantages shown, and the wants pointed. Leases universally prevail of nineteen years, and implements are made in Aberdeenshire that are not exceeded in Scotland. The author shows much botanical knowledge and of mineralogy, which are probably too much introduced in a practical work: yet science is never to be condemned. The appendix contains an excellent dissertation on the British grasses, and a most amusing account of the author's expedition to ascertain by barometrical measurement the height of the well known mountain called Loch na-Gar, which was found to be 3,800 feet. A view of the mountain is given in an engraving of good execution.

The author may have loaded the report with cumbersome adjuncts, which seem to be wanderings from the main purpose; but variety is pleasing and the work as a whole must be pronounced to be a valuable article of the kind, and superior to most surveys from Scotland.

CCCLVI.—Henderson, 1811.

Robert Henderson, farmer, Broomhill, near Annan, wrote "A treatise on the breeding of swine and curing of bacon; with hints on agricultural subjects:" Leith, 8vo., 1811. The book is an octavo of 139 pages, containing the natural history of the hog; different species; management of swine; curing bacon; making of brawn; prejudice against swine; great advantages of rearing and feeding hogs. The second part recommends the growth of hemp, and to use oxen occasionally for farm work. The conclusion is made of receipts and cures for the diseases of horses, cattle, and sheep.

The author had been a practical man of a superiority to the common degree, and imparts his knowledge in a plain and sensible manner.

CCCLVII.—Macdonald, 1811.

James Macdonald, M.A., wrote "General view of the agriculture of the Hebrides or Western Isles of Scotland, with observations on the means of their improvement; together with an accurate account of the principal islands, comprehending their resources, fisheries, manufactures, manners, and agriculture, drawn up under the direction of the Board of Agriculture, with several maps;" Edinburgh, 8vo., 1811, price 12s.

This report forms an octavo volume of 824 pages with maps of the islands in the chief selected clusters. The book has no preface or dedication, and seems intent on the one purpose of legitimate description. The geographical state and circumstances of the islands are very minutely described in the situation and extent, the climate, soil, and minerals. The estates of land are detailed in the extent and management, tenures, houses, fences, roads and bridges. Farmers' rent, labour, poors rates, land tillage, implements, crops, and animals have an ample description, and followed by general improvements, as draining, plantations, shelter, and better housing. The author does not appear

nor intermix any scientific knowledge into the survey of these naked islands; it would certainly be inappropriate, and the contents are very judiciously restricted to practical language. No better report has ever appeared on any special subject, and stamps the author as a superior person.

CCCLVIII.—MACFARLANE, 1811.

Duncan Macfarlane, D.D., and Rev. Andrew White wrote "General view of the agriculture of the county of Dumbarton, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" Glasgow, 1811, 8vo. This report occupies 344 octavo pages, with a very mean map of the county, and two plans of farm buildings. One is a fanciful erection by the Duke of Argyle, too costly for imitation, of which a fine print is given in the report. The other is on a plan of rural simplicity, that is much too confined for use. The general matter of the report is very well arranged, and the language is handsome, and very concise. It is an excellent report, and abounds in liberal sentiments, and most judicious remarks. The county is small, remote, and unbenignly situated, and the reporters have very wisely accommodated the matter to the circumstances. The existing objects are very well described, and many excellent suggestions are offered. The first inducement to improvement is the encouragement given by the landowner to persons of skill and capital to live upon the property, by furnishing the farm with every requisite on which the farmer's capital can be used with effect. This primary provision adapts in any country, and occurs to every first view of the subject; and then a length of tenure, to secure against detriment the outlay of the tenant.

CCCLIX.—BEASLEY, 1812.

W. Beasly wrote "A general view of the system of enclosing waste lands;" 1812. The National Library does not contain this work, or the name of the author; and London's list of authors does not mention it. The above statement is taken from the Bibliotheca Britannica, which is the sole authority for the use of the name.

CCCLX.—SELLON, 1812.

John Sellon, land surveyor, wrote "Outlines of a philosophical theory—being an attempt to prove that gravitation and caloric are the sole causes of every phenomena in nature; with a practical application to vegetation and agriculture;" London, 1812, 8vo., price 8s.

The regret is very considerable that this work is not found in the National Library, as it announces the treatment of two most important points in physical knowledge. The action of caloric must be very large, as it is the agent of every operation done by the hand of man in promoting the growth of vegetation. Manures act by its medium, irrigation works by its stimulus, and ploughing of land exposes the ground to its influence. Loudon's list of authors omits this name, and the sole authority of its use rests with the Bibliotheca Britannica, from which the above statement is taken. The examination of such a work would have been most interesting, as the author gives a practical title to his name, and thereby is better qualified to adapt the laws of physics to the practical applications.

CCCLXI.—STRICKLAND, 1812.

H. E Strickland, Esq., of Brighton, Yorkshire, wrote "A general view of the agriculture of the East Riding of Yorkshire, published by order of the Board of Agriculture;" York, 1812, 8vo. The report occupies 332 octavo pages, with a short introduction; the plates are of beehives, coloured vetches, gates, ditches with banks, hand tools and farming implements. The author is abundant in the praise of paring and burning as a means of improvement in the proper cases, where by no other known way could crops of any kind be obtained. Equally just views are expressed on all practical matters, and mentions the magnesian lime of Doncaster being inimical to vegetation, but does not express any opinion of the cause of the damage. He quotes Tennant's opinion, which admits an easy demolition.

The subject of manures is very concisely discussed, and such articles, cost and merits accurately stated. The cattle of Holderness are examined in the merits and defects, and the qualities defined. The horses of that country are a most peculiar article of observation. The author recommends the enlarged cultivation of potatoes, as a ready means of promoting labour and the quantity of food; also stall-feeding of animals during summer and winter. The work shows an educated mind, scientific and practical, free and unfettered, not flying aloft on airy phantoms, nor manacled by the dogmas of practice. A high position must be conceded to the report among works that embrace the same matters of comment.

CCCLXII.—HUNT, 1812.

John Hunt, surgeon, wrote "Agricultural memoirs, or history of the Dishley system, in answer to Sir John Sebright;" London, 1812, 8vo., price 5s. "Anatomical reflections on the formation of animals, and the new opinions of Henry Cline, Esq., surgeon;" London, 1806, 8vo., price 5s. The National Library does not contain these works, nor the author's name, though he published several professional books, and a large work on ornithology

with 60 plates coloured. The author may have lived in Leicestershire, as one work is printed at Loughborough. Loudon's list of authors does not mention the name or books; the sole authority rests with the Bibliotheca Britannica, from which the above statement is taken.

Scientific men always follow in the wake of practical doings, and after something has been effected by the unerring guides of observation and experience, they commence to explain the principles on which the process is founded. Though this knowledge is but little progressive, and shows a powerless possession, yet the reading of ideas is always useful that relate in a learned way to an important purpose. The writings of this author must have been interesting, and may have illustrated the past, if they did not promote the future. The managers of the National Library show a blameable laxity in not enforcing the power given by the legislature, of having sent to their repository a copy of every book that is published in the United Kingdom. The remissness is very hurtful, and posterity will not fail to regret the loss of the exertion.

CCCLXIII.—Bald, 1812.

Robert Bald, civil engineer, wrote "General view of the agriculture of the county of Mid-Lothian;" 1812, 8vo. This statement appears in the Bibliotheca Britannica; Loudon's list of authors does not mention the name, and the book is not found in the National Library, which contains the work by the same author on the coal trade of Scotland. The two works seem to have been published at the same place, and one book sent to the National Library, and the other withheld; a negligence much to be regretted, which deserves to be noticed in every occurrence. A national repository having been appointed, and an act obtained that a copy of every book be sent to it, it remains that the intentions be fulfilled.

CCCLXIV.—Singer, 1812.

Rev. William Singer, D.D., minister of Kirkpatrick, wrote "General view of the agriculture, state of property, and improvements in the county of Dumfries;" Edinburgh, 1812, 8vo., price 18s. Drawn up under the direction of the Board of Agriculture, and at the request of the landholders of the county. The report forms an octavo volume of 696 pages, with a map of the county, small and indistinct, some portraits of implements that are well known, and two representations of irrigated meadows. Two portraits are given of an Ayrshire bull and cow; mere caricatures, to show the great inferiority of the Scotch to the English artists, much more in living bodies than with inanimate representations. This distinction prevails at this day. The work of this author is large and voluminous, and contains much useful descripti geological section is given to represent the of the county, which are are contained in the i hilly part of the county, where the format proaches the underlying primitive. The presents materials of a large work; the low g and the sandstone, the slopes and undulatio to the mineral springs of Moffat issuing fr rock of compact greywacke; the surface is ver diversified, and contains a large variety of sub The author has well comprehended them s seems more at home on scientific matter upon practical objects. As it is, the surv been deservedly reputed.

CCCLXV.—Henderson, 1812.

Captain John Henderson wrote "Genera of the agriculture of the county of Sutherlan observations on the means of its improve drawn up for the consideration of the Bo Agriculture and internal Improvement: to is annexed a particular account of the more improvements of the county;" London, 181 "General view of the agriculture of the co Caithness, with observations on the means improvement; drawn up for the considera the Board of Agriculture and internal Im ment: with an appendix, including an acco the improvements carried on by Sir John S Bart., on his estates in Scotland;" London 8vo., price 15s.

The last report fills a volume of 371 pa which a large part is *addenda*, and the fol appendix occupies 222 pages. Drawings ar of the improvements in the harbour of Wick, the intended erections in the town of Thurs matters are all well described; but the ar ment of the volume is clumsy, though the c are unobjectionable. The map of the cou coloured into the different soils of clay, lo m heath, waters and lakes. The survey of S land occupies 238 octavo pages, with a pla of the county, showing the mountains, lakes, and the narrow strips of clay and loam, form the arable grounds by the sides of The drawings are several, of old towers, Du Castle, and of a farm steading.

The report is much more condensed th former survey, but the appendix is still long two works are very creditable.

CCCLXVI.—Little, 1813.

John Little wrote and dedicated to the S shire Agricultural Society, "Practical obser on the improvement and management of m sheep, and sheep farms, also remarks on st various kinds;" Edinburgh, 1813, 8vo. Th fills 198 octavo pages, describing the site of

enclosing, draining, bridges, shelter, burning heaths, shade, clipping, weaning, smearings, duties and qualifications of shepherds. The breeds of sheep are briefly mentioned, and the merits settled. Sheep-farming in Cardiganshire; diseases of sheep; railways, and general observations.

This small volume is written from the identical practice it describes, which raises a merit wherever it exists. The author had been a shrewd observer, and a steady practitioner, who had extended the circle of his knowledge far beyond the range of the visible horizon. His observations reach to the most improved localties of animals and arable land, and he discusses the merits and drawbacks of breeds and practice with much justice and impartiality. The divisions of the matter are rather many; but the subject of each is concisely treated, and satisfactorily dismissed. The miscellaneous observations occupy 50 pages, and to some persons will appear to be the most valuable part of the volume.

CCCLXVII.—Thomson, 1813.

Rev. James Thomson, minister of Eccles, in the county of Berwick, wrote "Sketch of the present state of agriculture in the county;" in Thomson's Annals of Philosophy, i., 260, 1813. The work fills about 11 pages of octavo size, and has been very properly called a "sketch," for it describes merely the practical facts and doings, without one scientific observation, a suggestion, or any prospective remark. It is much the weakest thing that has come under our notice, and its admission into the Journal of Dr. Thomson, one of the scientific luminaries of his age, does seem wonderful, if not altogether unaccountable. Dull practice does ever require some illumination.

CCCLXVIII.—Moubray, 1813.

Bonnington Moubray, Esq., wrote "A practical treatise on breeding, rearing, and fattening all kinds of domestic poultry, pheasants, pigeons, and rabbits; including an interesting account of the Egyptian method of hatching eggs by artificial heat, with the author's experiments thereon—with additions on breeding, feeding, and management of swine; on milch cows for the family dairy; and on bees, from memoranda made during forty years' practice; London, 8vo., 1813. The work is an octavo volume of 312 pages, in seventeen sections—various species of poultry; qualities of flesh; gallinaceous fowls; aquatic birds; breeding and rearing chickens; treatment of breeding stock; hatching brood; hatching eggs by artificial heat; pheasants; feeding and fattening chickens; turkeys; pigeons; rabbits; diseases of poultry and pigeons; swine in the breeding, rearing, fattening, and curing for bacon; milch cows; bees.

This work was long esteemed the best on the subject which it treats; many others have since appeared, and it has sunk from view. The work is deficient in not giving designs of poultry and pigeon-houses, showing the accommodations necessary to effect to the recommendations of the breeding and treatment. The artificial hatching of eggs in Britain went along with the Merino sheep; our climate does not endure the application. The Merino sheep could not be fed, and the chickens from the artificial heat die under the chills, damps, and rains of Britain.

The author has certainly had very much knowledge of the subject, joined with an acute observation, and the intelligence is very plainly conveyed. The work is truly practical, and as the preface informs us, was regulated by a stud book of pedigrees. This useful fancy may in any case be combined with the strictest utility, and if it does much advance the value of the system, it adorns the practice, and embellishes the course. The farmer may not have leisure or inclination to perform the registry; it may not be necessary in his case, but the amateur does well in such employments of time and occupations, and amateurship has been reduced into many adopted practices.

CCCLXIX.—Davy, 1813.

Sir Humphrey Davy, Professor of Chemistry in the Royal Institution, LL.D., F.R.S., V.P.R.I., F.R.S. Edinburgh, M.R.I.A., was born in 1778, in the small town of Penzance, in Cornwall, where his parents were humble, but very respectable. In the town of his birth, and in Truro, he received a grammar-school education, and was noticed for a ready acquirement of knowledge from books. His father dying, our author was apprenticed to a surgeon apothecary, who afterwards became a physician. He very early showed a prying disposition into the nature of things, and was not long in arresting the attention of scientific persons, who could appreciate the signs of his eminence.

He was transported to Bristol, as superintendent of a chemical institution. In this sphere, he laboured so effectually, that he was appointed lecturer to the Royal Institution in London, on its first foundation. In this situation, his discoveries were numerous in the higher branches of the science, and have raised his name to the very pinnacle of renown. Electro-chemical action was his forte, and he raised the knowledge on that point to a very high pitch. He was knighted, married richly, and was in very comfortable circumstances. He travelled in France quite safe under the special protection of the Emperor, who ever cherished the sons of science, and was well received by the French philosophers. He visited the North of Italy, every moment and in all

places engaged in scientific pursuits. In 1816, he invented the safety lamp for the use of coal-pits, and continued his unremitted labours in science. In 1820, he succeeded Sir Joseph Banks, as President of the Royal Society, and held the office for a few years. In 1826, his health declined, and he could not enjoy the relished employments of shooting and fishing. He went abroad in 1827, to the North of Italy and the Tyrol. He returned to England and left it for ever in 1828. He went by Laybach to Rome, removed to Geneva, and died there in May, 1829, and was honoured with such a funeral as the State where he breathed his last could bestow.

Neither the illustrious professional character of Sir Humphrey Davy, nor his personal character of pique and presumption, do at all affect our simple narrative; he is known to the agricultural world by his work entitled "Elements of agricultural chemistry, in a course of lectures to the Board of Agriculture;" 1813, 4to., 42s.; second edition, 8vo., price 18s. The book enjoyed some little popularity, but scarcely added anything to our previous stock of knowledge. It was hailed as a grand beginning; but nearly half-a-century has not shown any advancement. And this deficiency may not be owing to any lack of exertion, or remissness in using and connecting the knowledge that exists on both sides; but from the impossible nature of the employment that has been projected. Agriculture and chemistry are connected in the single article of manures only; the other uses are very widely different. A dissertation on trees, in the epidermis, bark, pith, leaves, and medullary rays, adds nothing to the management of the growing vegetable, nor to the mode of cultivation, or the use of the timber. And so with the cultivated plants of the farm, and also with manures; every art has its own peculiar philosophy, and is advanced by its own observations and experience. But this seeming impossibility of connection may not hinder the attempts being made, as the praise-worthy labours may alight upon some fortuitous discovery, or elicit some slight appearance, which may swell into an ample compensation for many provoking miscarriages and aggravated misgivings.

CCCLXX.—Murray, 1813.

Adam Murray, land surveyor and estate agent, wrote "General view of the agriculture of the connty of Warwick, with observations on the means of improvement; drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 8vo., 1813, price 8s. This work had escaped the search of the Bibliotheca Britannica, and is not found in Loudon's list of authors, which does not enter all the county reports. Our notice comes from the King's Library in the British Museum. The book is an octavo volume of 187 pages, with a coloured map, but no plates; the contents are arranged in the usual way, and there is no appendix. It is a concise and very sensible performance, and rigidly practical. The author most judiciously observes "that Britain may import corn, but must produce flesh, and that the rents must chiefly come from animals." Present experience fully bears out the truth of the very sensible remark.

CCCLXXI.—Walker, 1813.

W. Walker wrote "An essay on draining land by the steam engine, showing the number of acres that may be drained by each of six different sized engines, with prime cost and annual outgoings;" London, 1813, 8vo., price 1s. 6d. This book is not found in the National Library: the above statement appears in the Bibliotheca Britannica, and Loudon's list of authors makes a short notice of the name. It may be supposed that the author's plan collected the water to a corner or low position, whence the water was raised by pumps, and thrown over a barrier, to prevent its return from an outlet in a river, ditch, or brook. It is an effectual method of getting rid of water, where a level position renders difficult the egress of the fluid. By this means, any lands may be drained in whatever way the grounds may be placed; and by its application no water need be allowed to inflict any injury by stagnation, or by being stopped in the egress by reason of the want of declivity. It requires embankments, behind which the waters are assembled, and to prevent the return of the water after being thrown over the barrier. The dykes must be strong and durably executed.

CCCLXXII.—Leslie, 1813.

Rev. William Leslie, minister of the parish of St. Andrews, Stanbryd, wrote "General view of the agriculture of the counties of Moray and Nairn, with observations on the means of their improvements drawn up for the consideration, of the Board of Agriculture and internal Improvement;" London, 8vo., 1813, price 14s. in boards. The work fills above 500 pages and is one of the best arranged of the many county reports that were written for the Board of Agriculture. The map of the two counties fronts the title-page, and on a scale which gives a clear view of the district which is described. The chapters reach to eighteen, beginning with the geographical position, and ending with miscellaneous notices. The intervening contents are most judiciously discussed, and show a very intimate knowledge of the matters that are entertained. Portraits are given of the circular harrows that were used in the olden times, the only specimens that

have appeared during our agricultural research. The teeth, of timber, are ten in number in each harrow, and are arranged at equal distances around the circumference of the circle; each harrow is drawn by one horse. The author delineates in a very satisfactory manner the condition and advancement of agriculture in those counties where the cultivation of turnips has been carried to a high extent. Both the soil and climate are particularly favourable to the turnip plant.

CCCLXXIII.—Johnson, 1814.

John Johnson wrote "Short essay on agricultural improvements, showing as the first object the great need thereof:" 1814, 8vo., price 4s. 6d. This work is not found in the National Library, nor is the name mentioned in Loudon's list of authors; the above statement appears in the Bibliotheca Britannica, which forms the sole authority for the use of the title in this place. A regret is always moved when a book escapes notice, as our liking is to examine every idea that has occurred to any person on agricultural subjects. If there is much to be refused, there may be some small thing gathered, and this may reward the labour incurred.

CCCLXXIV.—Simpson, 1815.

Pindar Simpson wrote "Treatise on the cultivation of mangel wurzel as winter food for cattle." "On the improved beet-root, as winter food for cattle;" London, 1815, 8vo. This work is not found in the National Library; the above statement comes from Loudon's list of authors, and the Bibliotheca Britannica, which are the authorities for our entering the name of the writer and of the work. At the date of the book, the subject was interesting and invited attention, as a plant was working its way into use, which has proved a very valuable addition to the vegetables of the farm.

CCCLXXV.—Mavor, 1814.

William Fordyce Mavor, LL.D., vicar of Hurley, in Berkshire, wrote "Agricultural survey of Berkshire, drawn up for the consideration of the Board of Agriculture and internal Improvement;" London, 8vo., 1808. The work is an octavo volume of 548 pages in 18 chapters, and an appendix of 6 divisions or numbers. The plates are numerous; the map of the county is finely coloured in the geological districts, but the portraits of swine, sheep, and cattle are very faulty. The practical subjects are well discussed, and the observations are very judicious. The author treats paring and burning as it should be, imputing to ignorance and misapprehension the supposed injuries of that mode of fertilizing land. The appendix contains several useful notices. The whole work is highly creditable, scientific, and practical, as might have been expected from the author of the British Nepos, and other superior works. His scientific learning has probably carried him beyond the public reception, but on most points the work is not exceeded by any book of the kind.

CCCLXXVI.—Hornby, 1815.

Thomas Hornby, Esq., surgeon, York, wrote "Dissertation on lime, and its use and abuse in agriculture; embracing a view of the chemical effects;" 1815, 8vo,, price 2s. This work is not found in the National Library; Loudon's list of authors and the Bibliotheca Britannica are the authorities for the name and title in this place. The author's ideas on this very much speculated point would have been very agreeable, but probably have added nothing beyond the commonly entertained opinions. The use of lime may arise from the capability of the soil to which it is applied to receive and retain caloric; and the abuse or non-effect may proceed from the soil radiating the caloric too quickly, and retaining none for use. The former case will understand the best loams; and the latter comprehends sands, and the lighter soils of every denomination.

CCCLXXVII.—Birkbeck, 1815.

Morris Birkbeck wrote "Notes of a journey through France in 1814, describing the habits of the people, and the agriculture of the country;" 1815, 8vo., price 4s. "Letters from the Illinois;" 1818, 8vo. "Notes in a journey over America, from the coast of Virginia to the territory of Illinois;" London, 1818, 8vo. Loudon states that the author was a farmer in Suffolk, and afterwards an extensive proprietor and cultivator in the Illinois, and was drowned there in 1825. He has certainly made an excellent volume on the condition and prospects of that country, and which in our opinion claims the superiority over any other that has been issued. A book of 221 octavo pages, in 22 chapters, affords a mass of curious and most valuable information, and conveyed in a very truthful colouring and simple manner of writing. A map of the far west country is very useful to show the routes of travelling, and the position of the settlements.

The travels over France are very amusing and instructive, and are simply expressed. The above works hardly entitle the author to a place among British authors on agriculture; we follow the example of Loudon, and other catalogues of books and names.

CCCLXXVIII.—Richardson, 1815.

William Richardson, D.D., late fellow of Trinity College, Dublin, wrote "Essay on the utility and cultivation of fiorin grass;" London, 1810, 8vo., price 2s. "Letter to the Marquis of Hertford, on the culture and use of fiorin grass;" 1810, 8vo. "A

new essay on the florin grass;" 1813, 8vo." Memoir of useful grasses; on florin grass;" Nicholson's Journal and Philosophical Magazine, 1809 and 1813. "Essay on agriculture as a science, divided into separate departments;" ibid., 1815.

This author was a very learned person, and wrote on geological subjects, especially on the basalt as being an ancient lava. His works were of an ephemeral nature, hastily and carelessly concocted, and negligently regarded. An active observation had remarked the ready and quick luxuriance of the creeping bent grass on the humid soils and under the dripping climate of Ireland; the use was adopted, and it succeeded. A sanguine temperament recommended its adoption under all circumstances, and combated with a heated animosity the legitimate and valid objections that arise from the soil and climate of different situations. The author's success in his own peculiar situation never was questioned; but the extending of it became a widely different operation. The Bent genus of grasses, *Agrostis* of botany, produce a very small bulk of herbage; the seeds are very minute and small in quantity, and the propagation of the plant is almost wholly by means of the creeping roots, which throw out a stem from each joint.

These qualities, joined with the inferior nutritious properties of the grass, serve as an effectual bar to any large use of the plant, and must have appeared to any dispassionate judgment of the subject. The sowing of the grass was done by planting the stolons; a slow process and an expensive one, and entitled to much consideration in viewing the matter. It was only useful in laying artificial meadows to produce dry hay for winter food, and hence the inferior object in comparison with a root crop for a juicy nutriment.

A very great recommendation of the ray-grass plant is the quantity of sound seed that is produced, the ease with which it gathered, and the facility of committing the seed for a crop in the prepared ground. In the same points, the turnip exceeds the other green plants, as the potato, cabbage, carrot, and parsnip. The author had possessed little practical knowledge, and much less cool consideration.

CCCLXXIX.—Cline, 1815.

Henry Cline, Esq., surgeon, wrote, "Essay on the form and breeding of domestic animals;" 8vo., stitched, price 1s. The contents are in 14 pages, and describe very correctly the forms and bulks of the different parts of the animal organization, deduced from experience and anatomical principles. The author's ideas have ever been held to be very correct, and if he had enlarged upon the subject, his time would have been well spent, and the labour of reading would be profitably employed.

CCCLXXX.—Lee, 1815.

H. P. Lee, Esq., of Maidenhead Thicket, Berkshire, wrote "Description of a new threshing machine, invented by him;" Nicholson's Journal, xxix., 274, 1811. The author was largely concerned in agriculture, holding nearly 800 acres of arable land, and was compelled to attend to the means of manufacturing cheaply the large quantity of grain which was produced by cultivation. His alteration of the common threshing machine amounted to a nominal fraction, being a slight change in the delivery of the straw, grain, and chaff, after being separated by the beaters. The alteration never got into public notice or adoption.

CCCLXXXI.—Anderson, 1816.

William Anderson, farmer, Angus-shire, North Britain, wrote "Observations on a new mode of stacking corn, peculiarly adapted to wet seasons; recommending a plan successfully practised, by which corn may be stacked with advantage, soon after being cut down;" 1816, price 1s. 6d. This book is not found in the National Library; the above statement appears in the Bibliotheca Britannica, and in Loudon's list of authors. The author's ideas would be curious to know on a point which, if at all practicable, might probably incur an expense that would set it aside for general use. In accordance with the above plan of ricking newly cut grain, our idea has often imagined some way of making hay, *minus* the great toil and labour of the present way.

CCCLXXXII.—Haynes, 1817.

Thomas Haynes wrote "Essay on soils and composts;" 12mo., price 5s. The author was a noted horticulturist, and wrote on the strawberry and general notices; the above-mentioned essay is not found in the National Library.

CCCLXXXIII.—Macwilliam, 1818.

Robert Macwilliam, Esq., architect and surveyor, London, wrote "An essay on the origin and operation of the dry rot; to which are annexed Suggestions for the cultivation of forest trees, and an abstract of the forest laws;" 1818, 4to., price 21s. The National Library does not contain this work, which is barely agricultural, though the dry rot in roofing timbers will sometimes occur to the farmer's notice. The Bibliotheca Britannica makes the above statement, as also Loudon's list of authors, and on the latter very respectable authority our biography uses the name and title. Not many authors had escaped the notice of his research, which was used equally on small matters as on momentous consequences.

CCCLXXXIV.—Williams, 1819.

T. W. Williams, wrote "The farmer's lawyer; containing the whole of the law and local customs in regard to agricultural possessions, properties,

and pursuits;" 8vo. This work is not found in the National Library, and the Bibliotheca Britannica quotes T. Williams as the author of "Every man his own lawyer," and several compilations, which may have come from the same author as the above statement from Loudon's list of writers. Law and the dry rot will be in the farmer's way, and though not strictly practical, the alliance is sufficiently near to claim a notice in the chronology of the art. And a precedent has been given for the insertion of both names.

CCCLXXXV.—Towne, 1819.

— Towne wrote "Farmer and grazier's guide," in a small octavo, price 10s. The only notice of this work is the advertisement of it in the London Catalogue of books; no list of publications or authors notices the name.

CCCLXXXVI.—Radcliffe, 1819.

Rev. T. Radcliffe wrote "A survey of the husbandry of Eastern and Western Flanders, made under the authority of the Dublin Farming Society;" 8vo. Loudon's list of authors makes the above statement, but the book does not appear in the National Library. But the author performed well the task he undertook, and the work has been correspondingly esteemed. The continent of Europe had been locked from British intercourse for many years; when the general peace opened the gates of access, a rush was made to catch the treasures of any kind which were supposed to have been concealed from use during this long cessation of intercourse. But nothing resulted to agriculture; liquid manure was the chief topic, which requires both soil and climate to be of a peculiar construction to favour its development. In Britain, it was volatilized by enthusiasm, vanished into vapour, and has now been condensed into cold water, to be used as before, in being absorbed by straws and earths.

CCCLXXXVII.—Swinbourne, 1819.

R. Swinbourne wrote "The farmer's new and complete account book." This folio book contains 129 pages, divided into the necessary forms of detail. The first page contains the inventory and valuation of stock, and then the weekly accounts of wages for a year. The columns are given for the sale of all grains and roots; purchases and sales of every kind; summary of receipts and payments; and accounts of grain dressed, used, and sold. An abstract is added of the whole business of the year. This work seems to be among the first, if not the first, that was issued for the farmer, and is not the worst among the many that have followed.

CCCLXXXVIII.—Burroughes, 1820.

Edward Burroughes, Esq., wrote "Essays on practical husbandry and rural economy;" 8vo. The National Library does not contain these publications; but they are well known to the public, and are mentioned by Loudon. The author was an Irish gentleman in society, served in the army, and was latterly a farmer in the county of Worcester. His attention was much turned upon green crops, which he raised and used very systematically and successfully. The author was not carried away by any reverie, or visionary schemes; substantial utility was close behind every practice, and sanctioned every operation. He was active and intelligent, judicious, and steady to his purpose. He died, we think, about 1830.

CCCLXXXIX.—Beatson, 1820.

Major-General Alexander Beatson wrote "A new system of cultivation without lime or dung on summer fallows, as practised at Knowle Farm in the county of Sussex;" London, 1820, plates; supplement, 1821, 8vo., plates. The author was aid-de-camp to the Marquis of Wellesley in India, during the war with Tippoo Sultan, and wrote a work on the origin and progress of the war. He served in the army to the general peace; retired to a farm near Tunbridge Wells, where he compiled the above work; was called to the governorship of St. Helena, where he died after writing a work on the introduction into the island of a better agriculture, and other improvements.

General Beatson possessed a very active and acute perception, and had the faculty of methodizing into a system for practice the observations that were presented. It is a rare faculty, and distinguishes originality from the herd of slavish followers. In India, the observations were converted into a handsome volume. In the island of St. Helena his visual organ perceived the want of a better agriculture, and two tracts were written on the subject; and at Tunbridge Wells, and among the Wealden clays of Sussex, he observed the labour of the farmers during winter, in ploughing up stiff soils which employed them throughout the summer in the reduction to tilth. He conceived the idea of not ploughing the lands at all, but to scarify the surface in the depth of two or three inches, which would supply the necessary pulverization to the seeds and roots of plants, and by scorching and torrifying it to supply the place of manures with the scorched soil. His book details the system, and its success on Knowle Farm; but his removal and death killed the operations, and the system went to the grave with its author. The idea still survives, but houseless and homeless, neglected and forgotten.

The operations of the life are on the surface of the earth; and after the ground has been prepared in the common way, and the seeds of plants com-

mitted to its bosom, the growth of vegetation is the joint operation of terrestrial and atmospheric action. It is possible that the former may be produced by some easier process than the usual mode of practice. A vast fertility is seen to follow very slight operations on the surface of the ground; a scratch being done on the top of the earth, produces great effects, by reason of the superior quality of the materials among which the movement is made. The extreme upper surface of the earth is humified by the formation of that body from decomposed animal and vegetable matters in some degree of quantity and quality; it is aerated by the exposed propinquity to the atmosphere, and therefore it is much the best prepared receptacle for the seeds of plants. The labour and expense of turning up and preparing the under-soil may not be compensated by the addition that is made to the upper stratum by the intermixture of pulverized cold earth which is got by reduction of the soil.

There is a vast fertility produced by the covering of the ground, or the protection of it from the wasting influence of the sun and winds. This application may very much help the idea of General Beatson, by preventing the waste from exposure of the small quantity of upper soil that is pulverized by his mode of scarifying the surface. It had not occurred to him; but the junction of the two suggestions might prove a fact when one proposal might fail. Our own opinion has ever regarded General Beatson sinitiating practice as the germ of a revolution in the management of clay soils; he made a large deviation from established practice, and a smaller step than he took may at no very distant time finish the beginning which he commenced.

CCCXC.—Rigby, 1820.

Edward Rigby, M.D., F.L.S., surgeon at Norwich, wrote "Holkham, its agriculture, &c.;" 8vo., 1821. "Framlingham, its agriculture, &c., including the economy of a small farm;" 8vo. The author wrote on several professional subjects, and the books were considerably reputed. The two essays above-mentioned are very plain and truthful descriptions of the agriculture of Holkham, as done in its palmiest days by the well-known T. W. Coke, Esq., who was latterly Earl of Leicester.

The author wrote "Suggestions for an improved and extended cultivation of mangel wurzel." The writer expresses the matter very sensibly on all farming subjects, combats prejudices very successfully, and states the results most candidly and with becoming satisfaction. He might be prejudiced from the outset in favour of Holkham farming, and may have looked at everything in a very favourable light; but the facts which are stated, and the results that are enumerated, are altogether undeniable, and never could have been doubted, except by purblind jealousy and the meanest prejudice. Mr. Coke was an architect of the very first order; he aimed at great heights, and at the same time built firmly; he laid a solid foundation, and used good cement in knitting the superstructure; he showed a great mind in labouring for posterity, and he made in himself his own monument.

CCCXCI.—Mather, 1820.

John Mather, Castle Hill, Carse of Gowrie, Perthshire, N.B., wrote "The Farmer and Land Steward's Assistant, or a specimen of farm bookkeeping, exhibiting, in a concise and simple form, the transactions in the arable, grazing, and woodland departments, a general cash account, and an account of the charge and discharge on each department, the whole selected from books of real business;" 4to.

This statement is taken from Loudon's list of authors; but the name is not found in the Bibliotheca Britannica, nor in the National Library. Publications on farming accounts now began to be issued, and were multiplied very fast; this author and Swinbourne were the first of any note, and are quoted accordingly.

CCCXCII.—Grisenthwaite, 1820.

William Grisenthwaite, apothecary, of Wells, in Norfolk, wrote "A new theory of agriculture, in which the nature of soils, crops, and manures is explained, many prevailing prejudices are exploded, and the application of bones, gypsum, lime, chalk, &c., determined on scientific principles;" 12mo. This name and work are not anywhere found except in Loudon's list of authors, and the writer does not seem to be known by publications of any other kind.

The pity is that any notice of agriculture should be concealed; for though little or no substantial good may accrue from such essays as the above work, yet it is pleasant to read the nibblings of any imagination at objects that are beyond its reach, and probably too big for its capacity. Such attempts have sometimes caught the subject in the true light, and hence amply repaid all former exertions.

CCCXCIII.—Speechley, 1820.

William Speechly, author of a Treatise on the culture of the vine, &c., wrote "Practical hints on domestic rural economy, with an appendix, containing several original agricultural essays;" 8vo., London, 1820. This work is not noticed in the Bibliotheca Britannica, nor in Loudon's list of authors; it is found in the National Library in a thin octavo volume of 190 pages, and dated from Great Milton, Oxfordshire. The only notice of agriculture

is in an essay on spring wheat and top-dressings. The observations of the author are very sensible on the gardens of cottagers, extent, mode of cropping, and proper plants.

The agricultural value of the book is small, but still worth its room in a list of authors. The size of the cottage garden may vary from one-eighth to one-fourth of an acre, according to the value of the land, and the extent of the farm, and the number of the family. The farmer, who arranges his labouring department in the mode of gardens being attached to each dwelling, will do well to consult this book, where very judicious directions are given on every point that is contained in the arrangement.

CCCXCIV.—A PRACTICAL AGRICULTURIST, 1820.

This name wrote from Hertfordshire, and dedicated to John Christian Curwen, Esq., M.P., of Workington Hall, Cumberland, an octavo book of 176 pages, entitled "A treatise on soils and manures, as founded on actual experience, and as combined with the leading principles of agriculture, in which the theory and doctrines of Sir Humphrey Davy and other agricultural chemists are rendered familiar to the experienced farmer;" 8vo., London, 1820.

The author of this book reasons at length on many points, on which his science can never make any impression, as they are settled by an infallible experience. He arrives at conclusions, which were known before he began to write, and to which he has not added any valuable appendage. But he argues very acutely, and must have well understood the subject matter both practically and scientifically, and he avoids the common blunder of such persons in leaving the solid practice in exchange for unconnected and inefficient chemical terms. The book is worth perusal for its sound sense, if not enlightment on any point which is mentioned. It was noticed in its day, but soon sunk into oblivion.

CCCXCV.—KAVANAGH, 1821.

——— Kavanagh wrote "Cottager's Friend and Farmer's Guide;" 12mo., price 3s. 6d. The advertisement of this work in the London catalogue of books is the only notice of the publication: no other list contains the name.

CCCXCVI.—FINLAYSON, 1822.

John Finlayson, patentee of the self-cleaning ploughs and harrows, and author of a Treatise on agricultural subjects, was born at Garfield, in the parish of Mauchline, and county of Ayr, in the year 1780. About 1788, his father James Finlayson removed from Garfield to the farm of Kaims, in the parish of Muirkirk, where he carried on extensive improvements, and was upwards of thirty years an elder in the established church. John, his second son, was only remarkable in early life for possession of a more than ordinary degree of bodily strength for his years; and at school he very much distinguished himself by his rapid progress in the knowledge of arithmetic and mathematics. When he arrived at maturity he was six feet two inches high, of fair complexion, and exceedingly handsome. To mount a horse by putting his foot in the stirrup he considered quite ungallant in the eyes of a lady; he was therefore in the habit of taking hold of the mane, and lightly bounding from the plain. Throughout Scotland, the pastimes of hop, step, and leap, putting the stone, and throwing the hammer, are much practised. In these athletic exercises the subject of this memoir found no match for twenty years, and he relates being fitted to leap at the age of thirty-seven. "From Gleutuck down to the Rutton-Key," Finlayson was as well-known for being the best man in the county of Ayr, as Burns was for the best poet. This quality in early life led him into many broils. At last the county had a certain pride in him; and whenever a regiment of soldiers arrived in Ayr, or a Hercules sprung up at Mauchline Fair, Finlayson was always sought after. He was sanguine in all his expectations, and possessed a remarkable buoyancy of spirits. He always undertook more than he could well perform, and consequently was not the best paymaster in the world; but he rarely forfeited the good opinion of even those who lost money by him.

"When cold in the grave, lies the friend that you loved,
Be his faults and his follies forgot by thee then."
MOORE.

In the latter part of his life, Mr. Finlayson, like every scientific man, might be said to keep an account with the public, rather than with individuals; as the generality gained by his spirited exertions. He never looked up for himself, nor could keep two pairs of boots beside him. Often has he given the last shilling to a needy supplicant.

He had the management of two farms, one at the hip of Cairntable, and the other near Old Ayr; and his going betwixt the two afforded him an opportunity of becoming extensively acquainted in the county. The improvements which he effected in the chief implements of agriculture were all the result of necessity. In the year 1820, he had embarked in the reclaiming of about thirty acres of rough heath land, and found himself greatly puzzled to plough it the second season, from the continual choking of the plough by the tough furrow slices of the former year. On this occasion, he invented the circular beam, and made his edges more acute, which he kept sharp by the use of a file. Like a carving knife with a good edge, his new plough

overcame every obstacle with the greatest ease, to his own entire satisfaction and the astonishment of his neighbours. The iron harrow and Kentish plough were invented by him in England, and were also the offspring of due necessity.

The first edition of Mr. Finlayson's book, comprehending a series of essays on the cultivation of moss, putrescent manures, furrow-trenching, the patent self-cleaning plough, and the art of ploughing, was published by Lang at Glasgow, in 1822; and the second edition by Mr. Ridgway in 1829. The reception by the public may be inferred from the opinions of the Press.

The British Farmer's Chronicle, of February 26th, 1825, says: "The author of this very useful and interesting work deserves the thanks of the country, and of the farming interest in particular, for the many great improvements in the science of agriculture, which he has here laid before them, the fruits of many years' study and practical experience. The general utility of his system, and the superiority of his new implements over every other, have been most satisfactorily proved in the successful public competitions held with them before experienced agriculturists, in the different counties of England and Scotland, many of which are noticed in the work now before us, and also in the Farmer's Magazine."

And the British Farmer's Magazine, for May, 1827, has the following notice—

"We think it would be difficult to select passages from any author of equal length, of more value to the practical farmer than these sections on lime and putrescent manures; in our opinion, had Mr. Finlayson never written anything else, he is well entitled to our attention and the public gratitude, as they furnish clear data for the farmer to go by, in applying his manures. With him everything is done on principle; we never find him recommending lime when there is already a superabundance in the soil; nor using putrescent manures to a field abounding with vegetable products: but like a philosopher, lime is administered to hasten the putrefaction of vegetable matter, and putrescent manures to convey direct nourishment to the exhausted soil."

The reports of the exhibitions of his agricultural implements in the different counties of England and Scotland, occupy a place of no less than thirty-three pages in the appendix to the second edition of his work. At one of these exhibitions, Mr. Finlayson caught a cold, which brought on pulmonary consumption, of which he died, unmarried, at Springhill, near Muirkirk, on the 11th of February 1826, in the 47th year of his age, deeply regretted by his numerous friends and the agricultural world.

An obelisk has been raised to his memory in the church-yard of Muirkirk; but the utility of his improvements will be the most endearing memorial.

The iron harrow, known by the name of "Finlayson's harrow," is a most valuable scarifier, and is not exceeded in utility by any tool of that kind in the present day list of agricultural implements. It has furnished the ground-work of several similar constructions, but has never been surpassed in merit.

CCCXCVII.—Cleghorn, 1822.

James Cleghorn, Esq., formerly a practical farmer, and latterly an accountant in Edinburgh, was editor of the Farmers' Magazine in Scotland, and author of the article "Agriculture" in the Encyclopædia Britannica, and of other writings in that work. The author was one of the best modern writers on agriculture, being sensible and judicious, of sound views, and temperately enlightened. The agriculture in the above mentioned compilation has always been very much esteemed. The initiation shows much discernment; and the subsequent arrangement of the materials is judiciously made, and each article has given to it a proper description both in the nature and extent.

CCCXCVIII.—Napier, 1822.

Hon. William John Napier, F.R.S. Edinburgh, post-captain in the royal navy, vice-president of the Pastoral Society of Selkirkshire, in the south of Scotland, wrote "A treatise on practical store farming, as applicable to the mountainous region of Ettrick Forest, and the pastoral districts of Scotland in general, with engravings;" 8vo. This book is not found in the National Library, but the merits were very great. The patrimonial estate of the author's name, made immortal by logarithmic discovery, is placed in a thinly peopled country of sheep and shepherds, with a few farmers, whose education amounts to knowing the fashions and customs of the olden times. Our author being relieved from warfare had resided among these primeval adepts, had observed their practices, discovered faults, and suggested remedies. He saw that the success or failure of store farming among mountains and snows depended on the shelter and winter food that could be provided for the animals, and on the adaptation of the breed of sheep to the lowland pastures and the Alpine range. His published ideas were assailed with every rancour which prejudice could supply, and continued with much spite and enduring animosity. But time introduced the Cheviot sheep to all the lower pastures of Selkirkshire, and experience has provided much shelter and winter food for the animals during the bleak storms and deluges of snow that sweep the face of these elevated regions. Capt. Napier's ideas have had the full fruition of success.

CCCXCIX.—Munro, 1822.

Colonel Innes Munro, of Poyntsfield, N.B., wrote "A guide to farm book-keeping, founded on actual practice and upon new and concise principles;" royal 8vo., Edinburgh, 1822. This form of book-keeping occupies 147 octavo pages, and is the most complex idea that has ever been published on the subject. The outset places the fields and qualities of the soil in columns, with the number of acres attached. Then the crops on each field for 6 years, with the abstract of the statements. The inventory follows; schedule of wages; accounts current of animals, grains, roots, cut grass, lands subset, manures; and then collected abstracts, and general accounts, &c., &c., &c. A family account is added, with a general cash-book, which closes the balance of the proceedings. A banker's account and a bill register form an appendix. The form may amuse the gentleman, but never suit the farmer.

CCCC.—Salisbury, 1823.

W. Salisbury, a botanical nurseryman of Chelsea, wrote "The cottager's agricultural companion;" 12mo. "Hortus Siccus Gramineus, or a collection of dried specimens of British grasses, with botanical illustrations;" London, folio, price 63s. "On raising grass seeds and preparing meadow land;" Nich. Journal, 1810.

The first work only is found in the National Library, and occupies 96 pages of small octavo. The contents are valuable; detailing the general management of soils, manures, and grasses; calves, hogs, and rabbits; orchards and fruits; plants and grains that suit the cottager. The author's elder brother was a botanical author of large repute.

CCCCI.—Donald, 1823.

Robert Donald wrote "A new system of national and practical agriculture, to relieve distress, reduce the poor rates, and to improve estates;" Guilford, 12mo., 1822. This work is written in hexameter verse, and the subject fills 43 pages of duodecimo, along with some minor poems by the same author, who was a nurseryman at Dorking in Surrey. Ample recommendations are given on general subjects, but no details are attempted. Estates are improved chiefly by planting trees, as might have been expected from the author's employment. He recommends leases of land, and the proprietor to bear the chief expense in every project of extent. The poetry is nothing, but the practical ideas are perfectly sound and correct.

CCCCII.—Skurray, 1823.

Francis Skurray wrote "Importance of cultivating spring wheat;" 12mo., price 9s. The London Catalogue alone mentions this work, and gives to the same author other works of a different nature. No other list notices the name.

CCCCIII.—Fairbairn, 1823.

John Fairbairn wrote "A treatise on breeding, rearing, and feeding Cheviot and black-faced sheep in high districts; with observations on laying out and conducting a store farm;" Berwick, 8vo.

Loudons' list of authors is the sole authority for this name and the title of the book, neither of which is found in the National Library. The Bibliotheca Britannica also omits them, as the date of the work being in 1824, the omissions become frequent as the end of it approaches. Our biography loses a most valuable assistance in the cessation of that work, which forms a record of information that is unequalled in the literature of Britain. Loudon's list of writers continues till 1830.

CCCCIV.—Sinclair, 1824.

George Sinclair, F.L.S., F.H.S., was a native of the county of Lanark, in the west of Scotland. He was bred a gardener, and had received an education that was superior to the common learning of that grade of society. He was fortunate in getting into the service of the Duke of Bedford, where his botanical propensities could be indulged, and which were noticed by his noble employer, who possessed the georgical element of human nature in a degree that was most usefully developed. Their joint attention became directed to the grass plants, and to the seeming importance of their value and utility. Chemistry was admitted into their deliberations, as that science had reached the abode of agriculture by the pretensions of its value as promulgated by Sir Humphrey Davy. Trials of the several grasses were instituted, both practically and scientifically; each plant was sown on a square allotment of ground, the produce was cut and weighed at three periods of the season – at the time of flowering, when the seed was ripe, and in the autumnal lattermath. A weighed quantity of the grass was submitted to chemical analysis in each period of growth, and the results were very correctly received. The labours ended in a thick octavo volume, entitled "Hortus Gramineus Woburnensis—or an account of the results of various experiments on the produce and fattening properties of different grasses, and other plants used as the food of the more valuable domestic animals, instituted by John Duke of Bedford; to which is added an appendix, pointing out the different grasses best adapted for the manufacture of Leghorn bonnets;" royal 8vo., London, price 42s. A reduced edition has since been published at 30s.

The portraits of grass plants are most correctly delineated in this work and very finely coloured, and on that one property a very considerable value

with 60 plates coloured. The author may have lived in Leicestershire, as one work is printed at Loughborough. Loudon's list of authors does not mention the name or books; the sole authority rests with the Bibliotheca Britannica, from which the above statement is taken.

Scientific men always follow in the wake of practical doings, and after something has been effected by the unerring guides of observation and experience, they commence to explain the principles on which the process is founded. Though this knowledge is but little progressive, and shows a powerless possession, yet the reading of ideas is always useful that relate in a learned way to an important purpose. The writings of this author must have been interesting, and may have illustrated the past, if they did not promote the future. The managers of the National Library show a blameable laxity in not enforcing the power given by the legislature, of having sent to their repository a copy of every book that is published in the United Kingdom. The remissness is very hurtful, and posterity will not fail to regret the loss of the exertion.

CCCLXIII.—Bald, 1812.

Robert Bald, civil engineer, wrote "General view of the agriculture of the county of Mid-Lothian;" 1812, 8vo. This statement appears in the Bibliotheca Britannica; Loudon's list of authors does not mention the name, and the book is not found in the National Library, which contains the work by the same author on the coal trade of Scotland. The two works seem to have been published at the same place, and one book sent to the National Library, and the other withheld; a negligence much to be regretted, which deserves to be noticed in every occurrence. A national repository having been appointed, and an act obtained that a copy of every book be sent to it, it remains that the intentions be fulfilled.

CCCLXIV.—Singer, 1812.

Rev. William Singer, D.D., minister of Kirkpatrick, wrote "General view of the agriculture, state of property, and improvements in the county of Dumfries;" Edinburgh, 1812, 8vo., price 18s. Drawn up under the direction of the Board of Agriculture, and at the request of the landholders of the county. The report forms an octavo volume of 696 pages, with a map of the county, small and indistinct, some portraits of implements that are well known, and two representations of irrigated meadows. Two portraits are given of an Ayrshire bull and cow; mere caricatures, to show the great inferiority of the Scotch to the English artists, much more in living bodies than with inanimate representations. This distinction prevails at this day. The work of this author is large and voluminous, and contains much useful description. A geological section is given to represent the mines of the county, which are are contained in the interior hilly part of the county, where the formation approaches the underlying primitive. The county presents materials of a large work; the low grounds and the sandstone, the slopes and undulations, and to the mineral springs of Moffat issuing from the rock of compact greywacke; the surface is very much diversified, and contains a large variety of substance. The author has well comprehended them all, and seems more at home on scientific matters, than upon practical objects. As it is, the survey has been deservedly reputed.

CCCLXV.—Henderson, 1812.

Captain John Henderson wrote "General view of the agriculture of the county of Sutherland, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and Internal Improvement: to which is annexed a particular account of the more recent improvements of the county;" London, 1812, 8vo. "General view of the agriculture of the county of Caithness, with observations on the means of its improvement; drawn up for the consideration of the Board of Agriculture and Internal Improvement: with an appendix, including an account of the improvements carried on by Sir John Sinclair, Bart., on his estates in Scotland;" London, 1812, 8vo., price 15s.

The last report fills a volume of 371 pages, of which a large part is *addenda*, and the following appendix occupies 222 pages. Drawings are given of the improvements in the harbour of Wick, and of the intended erections in the town of Thurso. The matters are all well described; but the arrangement of the volume is clumsy, though the contents are unobjectionable. The map of the county is coloured into the different soils of clay, loam, sand, heath, waters and lakes. The survey of Sutherland occupies 238 octavo pages, with a plain map of the county, showing the mountains, lakes, rivers, and the narrow strips of clay and loam, which form the arable grounds by the sides of rivers. The drawings are several, of old towers, Dunrobin Castle, and of a farm steading.

The report is much more condensed than the former survey, but the appendix is still long. The two works are very creditable.

CCCLXVI.—Little, 1813.

John Little wrote and dedicated to the Selkirkshire Agricultural Society, "Practical observations on the improvement and management of mountain sheep, and sheep farms, also remarks on stock of various kinds;" Edinburgh, 1813, 8vo. The work fills 198 octavo pages, describing the site of farms,

enclosing, draining, bridges, shelter, burning heaths, shade, clipping, weaning, smearings, duties and qualifications of shepherds. The breeds of sheep are briefly mentioned, and the merits settled. Sheep-farming in Cardiganshire; diseases of sheep; railways, and general observations.

This small volume is written from the identical practice it describes, which raises a merit wherever it exists. The author had been a shrewd observer, and a steady practitioner, who had extended the circle of his knowledge far beyond the range of the visible horizon. His observations reach to the most improved localties of animals and arable land, and he discusses the merits and drawbacks of breeds and practice with much justice and impartiality. The divisions of the matter are rather many; but the subject of each is concisely treated, and satisfactorily dismissed. The miscellaneous observations occupy 50 pages, and to some persons will appear to be the most valuable part of the volume.

CCCLXVII.—Thomson, 1813.

Rev. James Thomson, minister of Eccles, in the county of Berwick, wrote "Sketch of the present state of agriculture in the county;" in Thomson's Annals of Philosophy, i., 260, 1813. The work fills about 11 pages of octavo size, and has been very properly called a "sketch," for it describes merely the practical facts and doings, without one scientific observation, a suggestion, or any prospective remark. It is much the weakest thing that has come under our notice, and its admission into the Journal of Dr. Thomson, one of the scientific luminaries of his age, does seem wonderful, if not altogether unaccountable. Dull practice does ever require some illumination.

CCCLXVIII.—Moubray, 1813.

Bonnington Moubray, Esq., wrote "A practical treatise on breeding, rearing, and fattening all kinds of domestic poultry, pheasants, pigeons, and rabbits; including an interesting account of the Egyptian method of hatching eggs by artificial heat, with the author's experiments thereon—with additions on breeding, feeding, and management of swine; on milch cows for the family dairy; and on bees, from memoranda made during forty years' practice; London, 8vo., 1813. The work is an octavo volume of 312 pages, in seventeen sections—various species of poultry; qualities of flesh; gallinaceous fowls; aquatic birds; breeding and rearing chickens; treatment of breeding stock; hatching brood; hatching eggs by artificial heat; pheasants; feeding and fattening chickens; turkeys; pigeons; rabbits; diseases of poultry and pigeons; swine in the breeding, rearing, fattening, and curing for bacon; milch cows; bees.

This work was long esteemed the best on the subject which it treats; many others have since appeared, and it has sunk from view. The work is deficient in not giving designs of poultry and pigeon-houses, showing the accommodations necessary to effect to the recommendations of the breeding and treatment. The artificial hatching of eggs in Britain went along with the Merino sheep; our climate does not endure the application. The Merino sheep could not be fed, and the chickens from the artificial heat die under the chills, damps, and rains of Britain.

The author has certainly had very much knowledge of the subject, joined with an acute observation, and the intelligence is very plainly conveyed. The work is truly practical, and as the preface informs us, was regulated by a stud book of pedigrees. This useful fancy may in any case be combined with the strictest utility, and if it does much advance the value of the system, it adorns the practice, and embellishes the course. The farmer may not have leisure or inclination to perform the registry; it may not be necessary in his case, but the amateur does well in such employments of time and occupations, and amateurship has been reduced into many adopted practices.

CCCLXIX.—Davy, 1813.

Sir Humphrey Davy, Professor of Chemistry in the Royal Institution, LL.D., F.R.S., V.P.R.I., F.R.S. Edinburgh, M.R.I.A., was born in 1778, in the small town of Penzance, in Cornwall, where his parents were humble, but very respectable. In the town of his birth, and in Truro, he received a grammar-school education, and was noticed for a ready acquirement of knowledge from books. His father dying, our author was apprenticed to a surgeon apothecary, who afterwards became a physician. He very early showed a prying disposition into the nature of things, and was not long in arresting the attention of scientific persons, who could appreciate the signs of his eminence.

He was transported to Bristol, as superintendent of a chemical institution. In this sphere, he laboured so effectually, that he was appointed lecturer to the Royal Institution in London, on its first foundation. In this situation, his discoveries were numerous in the higher branches of the science, and have raised his name to the very pinnacle of renown. Electro-chemical action was his forte, and he raised the knowledge on that point to a very high pitch. He was knighted, married richly, and was in very comfortable circumstances. He travelled in France quite safe under the special protection of the Emperor, who ever cherished the sons of science, and was well received by the French philosophers. He visited the North of Italy, every moment and in all

it be purchased by his successor, which would be an improvement on the present practice. A complaint of long standing has now become a subject of discussion; and when just and reasonable demands are pushed forward to be granted, a denial cannot be long received, and a beneficial alteration may be speedily expected.

CCCCXI.—Dacre, 1825.

Rev. B. Dacre, A.L.S., wrote "Testimonies in favour of salt as a manure;" Manchester, 8vo., 1834. The book is of 288 pages of testimonies in favour of salt as a manure, which failed to lead to any use of the mineral in that way.

CCCCXII.—Buchanan, 1825.

George Buchanan, civil engineer, wrote "A treatise on road making, railways, wheel carriages, and the strength of animals." This work is not found in the National Library, and the above statement is taken from Loudon's list of authors. The subject concerns the farmer; his occasional attention may be directed to road making, and the time may not be distant when moveable and temporary railways will be used for the purpose of affording much ease and convenience to many operations of the farm. All these subjects must be heeded by the cultivator of the soil; the direction of the labour, and the performance of it, are most essential ingredients in the estimate of giving and receiving that is made by the farmer.

CCCCXIII.—Waistell, 1826.

Charles Waistell, Esq., chairman of the committee of agriculture of the Society of Arts, compiled "Designs of agricultural buildings, including labourer's cottages, dwelling houses, and offices." Edited by his nephew, Joseph Jopling, architect, London, 4to., 1826. This work contains 107 quarto pages of letter-press, four designs of cottages and dwelling houses, five designs of farmeries, three plans of gates, two corn-rick stands, and an old farmery improved. These designs claim but little merit at this present time; the labourers' cottages are too small, in having only one apartment; the dwelling house of the farmer is joined to the outbuildings, and the farmeries are limited in the necessary accommodations. The cart-lodge facing the south, is very objectionable, and also to have its opening into an interior yard. The fold-yards are too few in number, and the shelter sheds are not adequately provided. The pigsties are singly scattered about the buildings, placed in corners that are very inconvenient of access. Swine should be entirely separated from cattle, as the smell is very disagreeable. The dairy and the calves' house are shown, but the cowshed is not marked in any one of the designs. It should be in close contiguity to the calves' house, and the dairy not far distant. The author had not been a competently practical person; the dairy under the roof of the farmer's dwelling-house is very objectionable on account of coolness, and also to have the kitchen with a window forming a part of the front of the house. These arrangements show a faulty discernment of the proper details.

CCCCXIV.—Henderson, 1826.

Andrew Henderson, land surveyor and valuator, Montrose, wrote "The practical grazier, or a treatise on the proper selection and management of live stock; with cures for the most prevalent diseases, likewise showing a proper system of grazing different soils in various climates and situations, improving waste lands, draining and irrigating, with useful hints to the landlord, tenant, and practical grazier;" 8vo., Edinburgh, 1826. This work contains 446 octavo pages, with a frontispiece in a plan of farm offices. The design is not a bad one, but wrong in excluding the sun from the yards by a building in the front, or shelter sheds. It provides a separate piggery, as swine may be used in North Britain. The feeding houses for cattle are well provided with the ready access of turnips and straw. In our opinion the design exceeds any plan of Waistell's.

The diseases of animals are stated at too great length, as good treatment will nearly banish all distempers; but the general management and directions given are wholly unobjectionable. The portraits of the animals are very faulty, being caricatures of no low degree. There is another occasion of observing the very inferior artistical skill of Scotland when it attempts animal portraits, even when it copies, and does not delineate from life. In no point of agricultural industry does such a difference exist between the southern and north parts of the kingdom. On the other hand, in originating, constructing, and delineating implements of tillage, Scotland is as far ahead of England.

The author treats shortly, but very sensibly, on irrigation, drainage, and improving waste, of which points his ideas are very just, and conclusions well founded. The work is very creditable.

CCCCXV.—Steele, 1826.

Andrew Steele, a proprietor in the neighbourhood of Edinburgh, wrote "The national and agricultural history of peat moss;" Edinburgh, 8vo. The volume contains 401 pages, and details much correspondence on the nature and value of peat and value of peat moss, the use of it as a manure, and its capability as a soil. Neither chemistry nor practice has yet done much with peat; and this author advances nothing beyond its use as fuel in the true formations, and as land in the mossy earths.

CCCCXVI.—Mitchell, 1827.

James Mitchell, a retired grazier of Yorkshire, wrote "Sketches of agriculture, or farmer's remembrancer, alphabetically arranged;" London, 8vo., 1827. The work contains 355 pages, in which the connected matters of agriculture are explained under the alphabetical heads. The treatment is very simple and concise.

"The graziers' ready reckoner" was done by the same author, containing tables of contents of the weight of animals from the dimensions in girth and length. The author also wrote "Dendrologia, or a treatise on forest trees." The works show a person of varied knowledge.

CCCCXVII.—Collyns, 1827.

W. Collyns, Esq., surgeon, Kenton, near Exeter, wrote "Ten minutes' advice to my neighbours, on the use and abuse of salt as a manure;" Exeter, pamph., 8vo. Loudon mentions this work, which is not found in the National Library.

CCCCXVIII.—Meadows, 1828.

Arthur Meadows, Esq., wrote "Hints to the farmers of the baronies of Forth and Bergy, on the cultivation of mangel wurzel, beans, carrots, and parsnips;" Wexford, 8vo. Loudon's list of writers is the sole authority for this book and author, neither of whom is found in the National Library. When this circumstance occurs, no opinion is expressed of the work, and the authority is merely stated.

CCCCXIX.—Kennedy, 1828.

Lewis Kennedy, Esq., son of Mr. Kennedy, the late eminent nurseryman, of Hammersmith, steward to Lord Willoughby D'Eresby, wrote "The present state of the tenancy of land in Great Britain, showing the principal customs and practices of counties between the in-coming and out-going tenants;" assisted by J. B. Grainger; two parts, 8vo., London, 1828. The first part is on different modes of tenancy; the second on wool-growth, value and policy of the trade. This is an interesting and very useful work, and performed with much fidelity, save the crotchetty opinions of the nation being ruined by any freedom anent corn and wool. These opinions were the prevailing fashion of the day, and the authors inherited only a fair share. The customs of the counties convey much instruction on the points of utility and disadvantage. The introduction of the work has the most unusual length of 129 pages: vast calculations are there made of the losses that would ensue from the most trifling change, which deserve not any notice, as events have falsified every ground of assumption. Any practical work is much defaced by these assumed materials of use; and as no certainty can exist, the conclusions must be received with great caution. The authors had not to calculate and predict, but to examine and report; not to denounce perpetual mischief, but to suggest from seeming evils some beneficial alterations. It may have been thought to please the politics of the late Duke of Wellington, to whom the work is dedicated.

The author wrote "On the cultivation of the waste lands of the United Kingdom, for the purpose of employing the poor, and diminishing the poor-rates;" London, 8vo., 1829. There are 66 pages in this essay, which argues to establish what never was doubted—that the land must maintain the people by means of labour and rates; and it only remains to construct the machinery, adjust the parts, and regulate the performance. The difficulty lies in the arrangements; and until one competent architect be found to build a social system to comprehend these resolutions, the enigma may still remain of lands untilled and a people starving—a true paradox, and of long continuance.

CCCCXX.—Lupture, 1828.

Lupture wrote "Hints on manures;" 12mo., price 3s. This notice appears in the London catalogue of books; no other list of books or authors has the name in print.

CCCCXXI.—Lambert, 1829.

Joseph Lambert, Esq., wrote "Observations on the rural affairs of Ireland, or a practical treatise on farming, planting, and gardening, adapted to the circumstances, resources, soil, and climate of the country;" Dublin, 8vo., 1829. The work occupies 327 pages, with a medium introduction. The contents are valuable, describing many subjects in a very handsome and practical manner, and with much candour and benevolent feeling. The outset observations on farming are most correct, and show the author's knowledge of the subject to have been truly honest. The matters are very much mixed; roads, draining, hay-making, burning lands, ploughing, grasses, pasture, stall-feeding, breeding, sheep, swine, grains, legumes, roots, gates, and timbers. There follow observations on bogs and wastes, and on planting: ornamental gardening concludes the volume.

This miscellaneous way of writing has its advantages, and is not without its use; it relieves the dulness of reading a long subject, and conveys the meaning in a more lively and forcible manner. The transition from one subject to another shows a largeness of information on the part of the author, and an eagerness to impart the knowledge that is possessed. The writer of the present work has shown an adeptness in this way; and the manner in which he has discharged his undertaking does not reflect any disgrace on the mode he has adopted

to convey the information. He seems to be unknown, except in the appellation above given.

CCCCXXII.—Stephens, 1829.

George Stephens, drainer, member of several foreign societies, wrote "The practical irrigator, being an account of the utility, formation, and management of irrigated meadows, with a particular account of success of irrigation in Scotland;" to which is added a practical treatise on straightening water-courses, protecting river banks, and embanking lowlands, Edin., 1829, 8vo. The work comprehends 195 pages, and describes very practically the common formation of water meadows in float and catchwork, and the great value of that mode of improving the value of lands. No great success ever attended irrigation in Scotland; the practice of it was ever very small. The author's extent of knowledge in draining amounts to bogs and swamps, and to intercepting the springs of water that rise from permeable strata; the frequent system of modern draining had not occurred to the practice of those times, and in which the carrying away of surface-water supersedes the catching or intercepting of the permeating flows in the underground. On the subjects that are treated, no better work has ever appeared; but being limited in the comprehension, the value is proportionally decreased. Elkington's mode of tapping springs of water by boring into the tail of the conveying stratum, and the intercepting of outlets by a trench cut below the gurgles of water, have all given way to more certain methods of performing the purpose.

CCCCXXIII.—Doyle, 1829.

Martin Doyle wrote "A cyclopædia of practical husbandry and rural affairs in general;" Dublin, post 8vo., price 12s. The book comprehends 507 octavo pages, and treats the subjects in the alphabetical order; the intelligence is very plain and practical, but sufficiently enlightened. The portraits of the animals are bad; but the designs of cottages are elevated to the bed-rooms being placed on the second floor, which shows the ideas of the author were raised beyond the common grovelling on that subject. The book is dedicated to the Marquis of Downshire, and we believe the author was an Irish clergyman, and wrote several little works on farming and gardens. There is not shown any progress in ideal practice or a large comprehension of the art of agriculture, but merely a plain and very sensible matter-of-fact exposition of current and known intelligence in a very acceptable and useful manner. The author had read much, and quotes largely.

CCCCXXIV.—Harley, 1829.

William Harley wrote "The Harleian dairy system, and an account of the various methods of dairy husbandy pursued by the Dutch; also a new and improved mode of ventilating stables, with an appendix containing useful hints (founded on the author's experience) for the management of hedgerow fences, fruit trees, &c., and the means of rendering barren lands fruitful;" London, 8vo., 1829. The author was originally a manufacturer in Glasgow, and afterwards an extensive cow-keeper and builder there. He died in 1830.

The volume contains 288 octavo pages, the plan of the cow-house, and the portraits of an Ayrshire bull and cow. Our inspection is again compelled to relate the vast inferiority of the Scotch artists in animal life; the present case is the worst that has occurred. A caricature is an appellation too gentle to convey an idea of the performance. The cow-shed was on a magnificent scale, with stone cribs and cast-iron troughs, and much contrivance to collect the urinary fæces. The soiling system was adopted, and much convenience was devised. The piggery is very deficient in contrivance, being the common sty and yard under a low roof, and without any adjoining yard for the dung. The upper storey of the cowhouse was designed into apartments for containing litter, and sleeping-rooms for the attendants. The establishment did not last very long; such costly doings fail in competition with the humble dealer, who is able to produce the articles at less cost, and is the successful competitor. It matters not in such cases if the cows are tied to stakes of iron or timber, or if the feet are placed on a stone or wooden pavement; if the chains round the neck of the animal is attached to a pulley or by a ring to the stake. These arrangements show only an ingenuity which is pleasing to the fancy, and to be looked at in use; but the milk is no way affected by the articles, and the cost adds a heavy sum on which the interest of the capital has to be computed. But such executions always show something for adoption, and are not wholly useless.

CCCCXXV.—Fall, 1829.

Thomas Fall, surveyor of roads, wrote "The surveyor's guide, or every man his own road-maker, containing the whole art of making and repairing roads, prices for work, forming of estimates, and office of surveyor;" Retford, 12mo. The work contains 163 pages of duodecimo, and is a most valuable treatise; nineteen sections give the best directions that are known on the subject of making and repairing roads. The author uses one material for roads—a depth of small broken stones, with sharp points and angles, laid on the cart-way at three different times, according as the weight is settled into position. Twelve inches in depth of broken stones form a sufficient road. Surveyors

and farmers will be much informed and repaid by the labour of perusing this little volume.

CCCCXXVI.—Strickland, 1829.

G. Strickland, Esq., wrote "A discourse on the poor-laws of England and Scotland, on the poor of Ireland, and on emigration;" London, 8vo., 1829. This discourse occupies 127 pages, and is dedicated to the Marquis of Lansdowne; the author dates from Hildenley. The usual complaints are made of the great and growing evil of the poor-laws, and the remedies examined that have been offered for the mitigation, if not total abolition. The author is not sparing in rebuke of the promoters of new schemes, but does not seem ready with any plan of his own, and he leaves the subject as he found it—a truly repugnant idea to the name of civilized society. Whatever arrangements are made, the original and adherent character still remains.

CCCCXXVII.—Lawson, 1829.

John Lawson, jun., Elgin, wrote "A treatise on smut in grain;" London, 1829, 8vo. The essay occupies 68 8vo. pages, with portraits of parts of different grains in the sound and diseased state. Smut in wheat is attributed to the luxuriance of the stem, which leaves wholly untouched the grand puzzle of sound and diseased stems proceeding from the same root, and smutted and sound grains being found on the same ear. The author reasons very acutely, and states his ideas very frankly, and gives many communicated opinions on the subject. But all opinions and theories have failed, and may probably ever fail to account for the above-stated appearance of soundness and disease springing from the same root, and being seated on the same spike.

CCCCXXVIII.—Trimmer, 1829.

Joshua Kirby Trimmer wrote "Practical observations on the improvement of British fine wool, and the national advantages of the arable system of sheep husbandry;" London, 8vo., 1829. The author published in 1809 a work not generally quoted: "A brief inquiry into the present state of agriculture of the southern part of Ireland, and its influence on the manners and condition of the lower classes of the people, with some considerations upon the ecclesiastical establishment of that country." The author had visited Ireland on business, and was struck with the usual painful feelings, from seeing the manner in which the poorer order of the inhabitants live. The inquiry occupies 80 pages, and is written in a very clear and feeling manner. Any suggestions offered in such cases are but as a drop in the bucket of the overwhelming mass of Ireland's misery.

The book on wool fills 80 octavo pages, and is divided into six chapters. The author states his success with the merino sheep, and had procured fine wool, and an animal equal to the Southdown breed. Much hard labour is bestowed in supporting an insecure edifice, of which the author lived to see the failure. No fineness of wool ever can supplant the flesh in the value of the English sheep. A heated fancy only is capable of overlooking this primary quality of use in Britain. The author had farmed extensively, and employed much business and observation on wool; his observations are very just and temperate, and conclusions legitimate. But the cause was false, and the whole edifice has crumbled. A want of caution and of cool reflection characterises these evaporations, and are the origin of the manifestations.

CCCCXXIX.—Lawson, 1829.

A. Lawson wrote "The farmer's practical instructor, showing all the latest and most improved methods of cultivating the vegetable and animal productions of agriculture, embracing every subject of information necessary to constitute the complete farmer;" 8vo., plates, price 12s. This statement is taken from an advertised list of works on agriculture, new and secondhand; the book is not found in the National Library, nor is the author mentioned in Loudon's list of writers. The title of it is respectable, and the want of the work adds to the regret that any perusal should escape our notice and research. It is always pleasant to record any labour that is usefully directed.

CCCCXXX.—Monteath, 1829.

Robert Monteath was a person employed in Scotland in making reports and surveys of woods and plantations, and in designing and valuing the wooded ground of landed estates. He wrote "A new and easy system of draining and reclaiming the bogs and marshes of Ireland, with plans for improving waste lands in general;" London, 8vo., 1829. The book contains 239 pages of very mixed matter, with plates of remarkable trees at home and abroad. The author raises very high the profits of planting, but devised no more feasible mode of fertilizing the bogs of Ireland than others which had preceded, and had all fallen to the ground. The author wrote "On planting and rearing woods," and "The forester's guide."

CCCCXXXI.—Cobbett, 1830.

William Cobbett was born in the year 1762, in the neighbourhood of Farnham, in the county of Surrey. His father was a small farmer of moderate education, but of very powerful natural abilities, and raised himself from a day labourer to the station of a farmer. Our author was the third son; and

the house in which he was born is close beside the river Wey, and immediately opposite the bridge which passes over that little stream; it is known by the sign of "The Jolly Farmer," and kept as a road-side alehouse. The repairs done to the house have obliterated the marks of the former habitation. The children of such a parent were early trained to labour; and our author was employed in scaring small birds from the turnip-seeds, and crows from the peas and oats. His advancing age weeded the grain crops, and led the horses in the harrows. The father taught the sons in the evening to read and write, and imparted the knowledge he had collected. Our author very early showed a spirit of adventure, and quitted his father's house for ever at the age of twenty years. He had heard of the "world," and was resolved to see it. He got engaged as a copying clerk in London, from which, in 1784, he enlisted into the army, and was transported to Nova Scotia with the regiment of his choice. He had contracted a liking to general reading, and laboured hard to improve himself. This employment kept him out of mischief. He was always sober and regular in his attendance, by which he drew the notice of his superiors. He was made a corporal, and distinguished by a worsted knot upon his shoulder. He married, and returned to England with the regiment, and bringing with him a very excellent testimonial of his character from the colonel of the regiment. He was discharged in 1791, by his own most earnest request. He got a court martial instituted against four officers of the regiment for embezzlement of stores and false returns, but did not appear to prosecute on the day appointed—a conduct that has never been cleared up. He went to France, and hence to America. He began in Philadelphia to write on politics, and soon excited attention. He was variously employed, and opened a shop as bookseller. He raised much ill-will by his writings and proceedings, as a high Tory in politics. His scurrilous writings were fined in the sum of five thousand dollars, and Cobbett fled to New York. He returned to England in 1800. His royalist principles procured him notice, and he entered a business as printer and publisher. The writings attracted much attention; but some affront or misunderstanding induced him to desert Toryism, and he became a decided radical reformer. To the latter his birth and social circumstances must have inclined him. In 1805 he came out in the character of a reformer; and for 30 years he occupied a large notice of the busy world in political literature. He was convicted of libel, and fined more than once; but his works increased in value, and he purchased an estate in Hampshire. He offered himself as member of parliament, but failed in an election; he espoused the cause of Burdett, and steadily supported him, till some confusion in affairs estranged them. He was intimate with Major Cartwright, who paid him attention to his death. He was prosecuted for libel, condemned, and imprisoned for two years, and paid a fine of £1000. A place among felons much affected him, and he rescued himself by paying a weekly maintenance elsewhere. During his confinement his works proceeded; and when liberated, he was entertained by his friends at a public dinner, and then visited his family in Hampshire. On the suspension in Britain of the Habeas Corpus Act, he went to America in 1817, and settled himself near New York; he took a farm, and commenced his agricultural pursuits. He was now an altered person, a steady and unflinching reformer, instead of an admirer of monarchies and of crowned and noble pedigrees. In 1819, every property he had was consumed by fire; and he returned to England, and brought with him the locust tree, and the corn plant which was known by his name. He was arrested for an old debt, but bailed by his friends. He was again convicted of a personal libel, and heavily fined. His chief publication was now in the name of his son. He again failed to get into parliament; but gained a prize for a piece of manufacture. At Preston he was beat in an election, by means of an opposing bribery. He was again indicted for a seditious libel; but the jury could not agree. The Reform Bill of 1832 placed our author as member for Oldham in parliament, and he took his seat accordingly, which he occupied till his death, in June, 1835. At that time he lived at Normandy Farm, in Surrey; so called from having been the night's resting place of the Duke of Normandy, after the victory of Hastings.

Cobbett wrote "The woodlands, or a treatise on planting, describing the trees, grounds, and management;" London, 1825, 8vo. "Cottage economy, containing information relative to the brewing of beer, making of bread, keeping of cows, pigs, bees, ewes, goats, poultry, and rabbits, and other matters of a labourer's family;" London, 8vo., 1822. "Treatise on Cobbett's corn, containing instructions for propagating and cultivating the plant, and for harvesting and preserving the crop; and also an account of the several uses to which the produce is applied, with minute directions relative to each mode of application;" London, 1828, 8vo. "Rural rides in many counties of England, with economical and political observations relative to matters applicable to and illustrated by the state of these counties respectively."

"The woodlands" forms an octavo book of 601 paragraphs, which are enumerated in place of pages. The contents are descriptive of the author's boyish

entertainments among the woods and copses of Surrey, and advance little beyond that practice. The trenching of all lands to be planted is recommended to be done two feet deep; and the pruning or mangling of trees is absolutely indispensable. Experience has now done away with both these provisions. The book contains much useful writing. "The cottage economy" fills 207 pages, and is perhaps the neatest and most usefully descriptive thing that ever was written on the subject. Here are combined all the author's very graphic simplicity of statement, with his personal knowledge of the subject that is treated. This opinion is universal. On the subject of pigs among the labourers, he says that a flitch or two of bacon is a great source of harmony between a married couple, and do more to prevent poaching than all the penal statutes that ever were enacted. The provision to keep tame animals is an effectual hindrance to go in search of wild ones. These truths are home thrusts of irresistible force; and the whole work is of similar sayings. "The treatise on Cobbett's corn" is a neat octavo volume of eleven chapters, in 203 paragraphs of description. The author mistook the possibility of accommodating the coarse corn of America to the climate and tastes of the British people. "The rural rides" are a model of the graphic simplicity of description for which Cobbett was so distinguished. The observations are very acute, and singularly correct. Cobbett published in 1822 an edition of Tull's Horse-hoeing Husbandry, prefixing to it a preface and introduction, and subjoining some notes and addenda. There are introduced several allusions to modern proceedings that seem analogous to Tull's ideas, and to the author's own sentiments. It added nothing to the original merit of Tull.

This author did not in any way advance the practice of agriculture either by precept or example, but he adorned the parts that have been mentioned by his homely knowledge of the art, and most agreeable delineation. He did not grasp the art as a comprehensive whole, nor did he aspire to the higher branches, among which to indulge a lofty seat of view and ideal elevation. His "Cottage economy" was the result of early impressions, and does honour to his head and his heart.

Our purpose scarcely comprehends the political notice of Cobbett, whose name is generally well known. His change of political creed had arisen from some affront or personal indignity, and showed the person to be the changeling of men in preference to measures or principles. This charge cannot be refuted. The philosophy of Cobbett was shallow, puny, and evanescent, and he seems to have been totally destitute of any of those grand principles which do not require to be ever changed, and which progress steadily, regardless of men or accidents, and like the sun vanquish all opposition, as that luminary rises in the east, and without noise dispels the mist and fogs of every clouded atmosphere. These principles need no eloquence to be enforced, nor any personal opinion, but remain as rocks in the sea that are never moved, or lifted up and down by tides. His mind had no philosophic grandeur, and but a small share of moral dignity. The hostility of Cobbett was a fiendish poison of the most virulent rancour, and wanted the wholesome discipline of the sense of what is virtuous and becoming. His flimsy weapons of attack on Sir Robert Peel glanced aside without a scratch of impression, and were shattered into atoms against the adamantine mail within which that profound statesman had encased himself; the words of abuse and the public accusations were unable to move the colossal weight of practical good. As a mere writer, Cobbett stands high, and possessed a style of words of the purest English idiom. His private character was amiable and affectionate, and both publicly and privately a benevolent philanthropy was ever present in all possible cases. A singular character in a member of parliament from a smock-frocked lad, with hob-nailed shoes, and done within the average compass of human life. No common qualities, or the usual industry and application of mankind, could accomplish such a result; there must have been a large natural gift on which to use the means of circumstances, and which dispensed with the usual and indispensable learning of the college and the bar. If Cobbett did not equal the products of these advantages, he excelled most who have practised without them.

CCCCXXXII.—Hogg, 1830.

James Hogg, or the Ettrick shepherd of Scottish story, was born in the year 1772, in the parish of Ettrick, in the county of Selkirk, in the south of Scotland. His progenitors had been mountain shepherds in that pastoral country as far back as could be remembered; only his father, with some earnings, took a sheep farm, and being unfortunate, again became a shepherd, when our author was ushered into the world. He was the second of four sons, and was early sent to hired work, being only seven years old, and got the half-yearly wages of a ewe lamb and a pair of new shoes, in addition to victuals, for herding a few cows. He had learned to read the most simple English writing, and advanced to some knowledge of the Bible, to form the letters in cypher, and to make figures, with which he defiled many sheets of paper. His subsequent education was self-taught, after he was advanced to be the keeper of sheep. In this employment he advanced to manhood, and began to read

books as he could get them, and attracted notice by an eagerness for newspapers, and such things as he could understand. In 1796 he began to write verses, having met a kind master for ten years, and who encouraged his propensity of information. So soon as he understood books, he began to write, and got the appellation of "Jamie the poeter" from the rosy nymphs who chanted his uncouth strains. He now heard of Burns, read his poems, and had his imagination fired to emulate his fame. In 1800 he published a song, the first production of his pen, and soon after a few poems. He was discovered by Sir Walter Scott, who was then collecting materials for his "Minstrelsy of the Border," to which Hogg contributed a number of old songs and ballads. The proceeds of his works which were collected and published brought him the sum of £300, with which he rented a sheep farm, on which he completely failed to live. He then passed years of busy authorship, and encountered the usual difficulties of that penurious mode of life. In 1814 he married, and retired to live on a farm given him "gratis" by the Duke of Buccleuch, which he managed so as to pay neither rent nor livelihood. His labours in poetry and in literary contributions continued till his death, in 1835.

The agricultural works of James Hogg are not of great value, but sufficient to place his name among the writers on that subject. The title of "Shepherd's Calendar" would betoken some practical work, but it is merely a collection of curious tales of the country in the life of the shepherd. The author relates that he got £86 for that celebrated work "Hogg on sheep," which is not found in the National Library, though all his other works are placed there. Our private notice has formerly had a book of this work; it is an octavo book of the medium size, and relates wholly to the care, management, and diseases of the mountain sheep of the black-faced breed, the only flocks which were known to Hogg, and on which he maintained the existing prejudices of his day. It never attained to any repute, and is entertaining only to one particular party and subject.

In the character of a poet and a man, James Hogg supported a very respectable character. He was much entertained by Sir Walter Scott, who imagined he had found in the Ettrick shepherd one equal, if not a superior, to Burns. Some of Hogg's works have been lauded for originality, imagination, and boldness, but are homely and coarse; his simplicity was not pure or elegant, nor his enthusiasm bold or rapid. In passionate ecstasy he was far below Burns, whose piercing pathos have enshrined his name in every bosom of Scotland, which can read his poetry and comprehend his provincial meaning. The field of description was exhausted, and many generations must elapse, and revolutions must occur in national manners, before a field is opened for the enterprize of a successor to Burns. He found the field nearly untouched, and left it bare and uninviting to any succeeding attempts.

As a guest at the table of Sir Walter Scott, in the hey-day of his convivial meetings, Hogg must have been a companion of no common amusement. A native of the mountains, his plaid was constantly worn, and his hands never were whitened from the mixture of tar and butter which was applied as a smearing over the bodies of the sheep. In this garb Scott always took care to place him at the tea-table between young ladies of the highest rank in the company, in order that he might exhibit his hands before them in handling the tea-cups, and in reaching the necessaries. After tea he would stretch himself on the finest sofas of chintz, to the amusement of Scott, and the amazement of the ladies. On such occasions, his address to the host and hostess was truly amusing: the former was at first Sir Walter, the Shirra (sheriff), then Scott, next Walter, and at last Wattie; and the latter was at first Lady Scott, and at last plain "Charlotte," which delighted beyond description the author of the novels, and great Wizard of the North. In Scott's house Hogg dined with Lord Byron, and thought his Lordship was "a dainty English laddie" (lad), "and took his toddy" (whisky and warm water) "brawley." His conversation wholly confounded Byron. He saw nothing in London very engaging of notice but the "noble brutes" which, in the shape of horses, pull along the streets the heavy waggons of coals, and the drays of breweries: all other things were trifles.

In the private relations of social life, Hogg was a kind, affectionate, and obliging; his integrity was as steady and upright, and his principles were just and unflinching. His mind was strong and vigorous, and his passions were under a proper control. In that latter point he far exceeded Burns.

CCCCXXXIII.—Berry, 1830.

Rev. Henry Berry was an extensive farmer in Worcestershire, and employed himself very much in rural matters. He was connected with the "British Farmer's Magazine," and wrote "Improved short-horns, and their pretensions stated; being an account of this celebrated breed of cattle derived from authentic sources, to which is added an inquiry as to their value for general purposes, placed in competition with the improved Herefords;" London, pamphlet, 8vo. In this essay the author displayed very much correct knowledge and sound judgment, even though engaged in a one-sided subject; the short-horned breed of cattle requires the best maintenance which the richest lands

can afford, in order to be profitable, and are exceeded by the Herefords and Devons in the fore-quarters, in the covering of flesh, and lightness of offal.

CCCCXXXIV.—Davey, 1830.

John Davey, Esq., wrote "Observations on the disease which has lately been so destructive to sheep, called Bane or Coath, particularizing the causes, and minutely describing the modes of effecting its cure, and pointing out those means which ought to be adopted to prevent its recurrence;" Bath, pamphlet, 8vo. This treatise has never been noticed beyond the bare announcement.

CCCCXXXV.—Smith, 1831.

James Smith was born at Glasgow, in 1789, in the middle station of society, his father being a very respectable merchant, and his mother of the family of Buchanan, in the western part of the county of Stirling, where a landed patrimony was held by them. He lost his father at an early age; but by the care of his maternal uncle, Mr. Buchanan, of Deanston cotton-works, near Doune, in Perthshire, a university education was afforded him, at which, and at the private schools, his proficiency was very good. His leisure time was spent with his uncle, who had removed to Catrine Bank, in Ayrshire, where he farmed his own estate of land, and displayed as much spirit in agriculture as in the department of manufacture. The nephew very aptly followed his steps, and was initiated into his views of mechanics, and of close draining, which had occurred to his powerful mind on the tilly clay lands and very humid climate of the high part of the county of Ayr.

Mr. Buchanan must be awarded the merit of close drains being filled with rubbly materials, which he both suggested and practised most successfully; another instance of educated minds, of alien professions, being highly advantageous to agriculture, being clear of the dogmas, and not entramelled in the net-work of the craft.

At the early age of eighteen years Mr. Smith was appointed manager of the Deanston works, that had become the property of a company, of which his uncle was a partner. His active energy had an ample scope in recovering a neglected and dilapidated establishment, and he very quickly collected and trained an almost unrivalled band of work-people, for whom he made a provision, both moral and physical, which showed a very peculiar benevolence of disposition. Sports and games in the hours of leisure, neatness of dress, and cleanliness of habits, education among the young, sobriety among the old, with a general system of religious and moral training, raised Mr. Smith's establishment into a model of employment, and a pattern of moral culture.

Being satisfied with the success of re-organizing the establishment at Deanston, Mr. Smith had leisure to look at farming, as he had not forgot the lessons of his uncle. His first production was a machine for reaping corn, which had many trials, and several pieces of plate as rewards, but never came into general use. He never gave up the idea that if the land was laid flat, all reaping would be done by machine. Mr. Smith displayed much ingenuity in many parts of machinery, and in useful contrivances connected with the cotton works of which he was manager.

The farm of land that was attached to the cotton works early attracted Mr. Smith's notice, and it was the kind of soil that allowed the benefit of the lessons he had received from Mr. Buchanan. This gentleman suggested drains of 18 inches deep, and 12 feet apart, and filled with stones broken to the size of road metal. On this plan the estate of Catrine Bank was drained, and succeeded to complete satisfaction. In 1823 Mr. Smith began to improve the farm of Deanston in 200 acres, which he thorough drained on the system of parallel drains 16 to 20 feet apart, and 27 inches deep, which was most effectual. The subsoil was various, hard and compact, impervious to water, sandy clay, spouty, with boulder stones, and in many places producing abundance of rushes and water plants. Mr. Smith very judiciously treated all these soils in the same way; the parallel drains were directed through clay and sands without distinction, as the same drains would equally serve both purposes. The rising water in the sands would be intercepted by the drains which caught the water from the clay soils. During his subsequent life, Mr. Smith held the same rule of draining, which the writer of this biography had from his own lips shortly before his death; and he had seen no reason to alter the depth of drains in 2½ feet, the frequency to be 12 to 18 feet according to the tenacity of the clayey soil, and large widths of 20 to 40 feet only showed the necessity of putting a drain between the distance as soon as possible." And after all that has been spoken and written about draining, no better practice has yet appeared.

Much land on Deanston farm was very thin of alluvial soil, often not more than 4 inches deep, and the subsoil being mostly the sandstone debris. Mr. Smith conceived the idea of gradually deepening the upper soil by moving, but not turning up, the under stratum. Being moved, it would percolate water and air, and be gradually assimulated to the upper soil, and no damage would arise from its being turned up, and at once mixed with the cultivable stratum, as had often happened with noxious subsoils of iron salts. The gradual assimilation would destroy any natural bad quality, and Mr.

Smith foresaw that a mixing of the subsoil would very much facilitate the escape of water from the surface into the parallel drains. With these views he designed and constructed the well known subsoil plough which bears his name, and the implement has rendered very good service in the cause of proper use.

Every practice that prevailed from Mr Smith was a system of the most ardent, kind, clear in the conception, well defined in the maturation, free in the execution, and liberally discriminated in the result. His system of draining and of general farming had got wings over the kingdom, and his society was much visited, and his counsel requested. After many years of this ardent and improving life, Mr Smith left Deanston in 1842, and lived in London as a consulting engineer. In that capacity he acted as a Sanitary Commissioner, visited Ireland, and tried the regeneration of the island of Lewis under the wealthy proprietor. He threw out many very excellent ideas, which may probably yet be caught and realised. Mr Smith died in May, 1850, at a friend's house in Ayrshire. He never married.

Some few papers which he read on draining and general improvement were all that Mr Smith contributed to the cause of agriculture; but his example was precious. He had a strong innate feeling, a generous and well regulated enthusiasm, and the conception of sound theories. His mind was at first and liberal, but not at all radically destructive; his religion, his morality, and his general policy, all tended to the true good of social humanity and moral development. He was a man among the multitude, and a light among the nations.

CCCCXXXVI. Blaikie, 1834.

William Blaikie wrote "Improvements to be made on moss lands in Ireland by the use of green crops, and feeding animals on the stalls. Some prospects on the country, proposing the use of an invaluable paper money."

Mr Blaikie was agent on the estates of the Earl of Clifford, in the county of Armagh, in Ireland, and proved a real benefactor to his employer and the country, and the harbinger of much coming good to the cultivators of the soil in Ireland. The feeding of animals on green food in the stalls is most properly adapted to small farms, and where turnip soils prevail, the advantages of that system are the great. This benefit soon appeared in the vast value which resulted from Mr Blaikie's administration, who advanced money to the farmers on security of the crops, and in no case was any loss sustained. He took an active superintendence himself, and he and his men were in the yard and round the system he had adopted. This was a true policy; and when regulated by the rent demanded, must regenerate any society that is so far advanced as to partake the benefits. Great good was done, and greater benefits must follow.

In our opinion, no writer on Ireland ever looked at the country in the true light except Mr. Blaikie; the means that are wanted must be afforded, and the demands of rent must be moderate, in order to allow the gradual progression of capital in the hands of industry. When sufficient intelligence and capital have been gathered, "then," cumulative forces, great leases, and cheap suitable farm buildings. Till that day comes, grand performances in Ireland must be throwing pearls before swine. Mr. Blaikie has left a name of very enviable reputation.

CCCCXXXVII. Wade, 1834.

James Wade, veterinary surgeon, Elgin, wrote "The farmer's guide; or a treatise on the management of breeding mares and cows, with a selection of simple and easy prescriptions for the diseases of horses and black cattle;" Elgin, 1834, 8vo. The work fills 224 pages, and though chiefly medical, it contains many very useful practical directions.

CCCCXXXVIII. Hillyard, 1836.

Charles Hillyard, Esq., farmed his own property of land at Thorpelands, near Northampton. He was a fine character of the plain subsoil, and shrewd and active, capable and discerning. He was a good cultivator of the soil, and excelled in the choice of animals. He was fond of well informed company, and eager for knowledge. He wrote and dedicated to Prince Albert "Practical farming and grazing, with observations on the breeding and feeding of sheep and cattle, and tables for computing the weight of carcases. Remarks on the probable effects of railroads and steam navigation upon agriculture. The agricultural poor laws, alteration of the tariff, the corn laws, cultivation of waste land, rents, tithes, rural population of the country, &c., &c." The volume contains 351 octavo pages of most sound practical sense, with several very amusing anecdotes. The matters are very interestingly mixed together; the author's ideas and the practices of establishment spring together, and form a curious incongruity. But the practical precepts are excellent, and the recommendations very just, except on the corn laws, where the author, with many others, lost their heads.

CCCCXXXIX. Whitley, 1836.

Sir Isaac Whitley wrote "The application of geology to agriculture, and to the improvement and valuation of land, with the nature and properties of soils, and the principles of cultivation;" 8vo., price 7s 6d. This work is not found in the National Library, nor the name of the author; the above statement is taken from a public advertisement.

CCCCXL.—BLACKLOCK, 1838.

Ambrose Blacklock, surgeon, Dumfries, wrote "Treatise on sheep and the wool trade;" London, 18mo. The contents treat only the black-faced breed of Scotland, which are a small portion of the family of sheep. The anatomy of the animal and diseases are well delineated.

CCCCXLI.—LINCHAN, 1838.

J. Linchan wrote "Drainage engineer and land improver;" 8vo., £1 4s., coloured. The London catalogue of books contains the above statement; the name is not found in any other place of notice.

CCCCXLII.—RHAM, 1838.

Rev. William Lewis Rham was born at Utrecht, in the Netherlands, in 1778, came early to England, studied medicine at Edinburgh, and eventually took his degree in divinity at Trinity College Cambridge. He was presented to the living of Winkfield, in Berkshire, where he died in 1843.

Mr. Rham throughout his whole life displayed an active and unremitting usefulness as a parochial clergyman, being the true friend of the poor, both in present cases and prospectively. He instituted a school of industry, which became a model of similar institutions, and imparted knowledge to the rising generation in the plain way of the most beneficial utility. On this subject his name is well known, and will be long remembered.

Agriculture obtained from Mr. Rham an early attention, and his preparatory studies well qualified him for looking at the art in the most elevated position. He contributed many articles to periodical publications, as "Aftermath," "Plough," and "Yorkshire Agriculture," to the "Penny Cyclopædia," which are distinguished by the author's sound judgment and sober discrimination. He collected the scattered materials into a volume called "The Dictionary of the farm," in which his views are most neatly and temperately expressed. He wrote "Flemish husbandry," a small work in the farmers' series of the "Library of Useful Knowledge." His "Essay on the analysis of soils" gained the prize offered by the Royal English Agricultural Society, and is published in the Journal, which contains some other valuable contributions from his pen.

Mr. Rham is the most sensible and judicious of all the scientific writers on the art of agriculture. He knew practice well, and revered it, notwithstanding all its dogmas; he received with caution and the most deliberate consideration the promulgations of chemistry, which had no other foundation than the fancy or the brain of the writer, who theorised in the closet, and experimented under a roof. He examined all sides of the question, and when asked, gave his opinion freely. He relied upon experience, in connection with a bold and searching investigation of theory, and has rendered his writings by that means by far the most acceptable of the present day. "Whatever," says he, "great chemists may say about the component parts of soils, I am persuaded they never can decide as to the aptitude of any soil to produce a crop till experience has shown it. I believe we have all everlooked some electro-magnetic qualities which we have not yet instruments to measure." In the eagerness of improvement, a writer is best calculated ultimately to benefit his country who unites scientific attainments of a high character with a rational degree of respect for the established practice of ages. "The Dictionary of the farm" should be in every farmer's bookcase.

CCCCXLIII.—VAUX, 1840.

Thomas Vaux wrote "Outlines of a new plan of tilling and fertilizing land;" London, 8vo., 1840. The work occupies 214 pages in a stitched volume. The author reasons very justly on the valuable improvements that may be done, and argues forcibly on the expediency of the execution; but he fails to adduce any new modes that are more eligible than the already known means of proceeding.

CCCCXLIV.—Cox, 1844.

George Cox wrote "Agricultural chemistry;" in 135 pages of small octavo size; London, 1844, price 2s. 6d. The author discusses aëriform matters, salts, acids, &c., &c., but fails to establish any fact for practical adoption. This is the fault of all chemical essays.

CCCCXLV.—RICHARDSON, 1847.

H. D. Richardson was a native of Scotland, and lived in Dublin. He wrote "Dogs, their origin and varieties, directions as to their general management, and simple instructions as to their treatment under disease;" Dublin, 1847, 12mo. "Domestic fowl, their natural history, breeding, rearing, and general management;" Dublin, 1847, 12mo. "The hive and the honey bee, with plain directions for obtaining a considerable income from this branch of rural economy; to which is added an account of the diseases of bees, and their remedies;" Dublin, 1847, 12mo. "The pests of the farm, with instructions for their extirpation; a manual of directions for the destruction of vermin;" Dublin, 1847, 12mo. "Pigs, their origin, varieties, and management, with a view to profit and management under disease; also plain directions relative to curing;" Dublin, 1847, 12mo. "Horses, their varieties, breeding, and management, in health and disease;" Dublin, 1848, 12mo.

These small volumes are known as Richardson's handbooks, and since his decease have been continued by the publisher, who employs different writers on the special subjects. They contain a condensa-

tion of very small matter, placed in a very neat order, well exemplified and illustrated and at a very convenient price. It is a very useful arrangement to have each subject of the art separately discussed, and forming a treatise by itself. The matter is generally better arranged, and more briefly treated than when placed in the body of a large volume of general compass.

CCCCXLVI. YOUATT, 1847.

W. Youatt spent a most useful and laborious professional life of upwards of thirty years in adorning the veterinary art, of which he was a very distinguished professor. He was a native of Lincolnshire, and obtained the notice of the leading members of the Society for the Diffusion of Useful Knowledge, and also of the London University College, where he was employed to deliver professional lectures, but which were not followed up. He also lectured privately to young students, and entered into several designs and partnerships in order to promote the art. He edited the "Veterinarian" Journal, and wrote in it a number of highly valuable papers, which have been published.

Under the superintendence of the Society for the Diffusion of Useful Knowledge, Mr. Youatt wrote "The Horse: its breeds, management, and treatment;" 8vo., London, 1834. "Cattle: their breeds, management, and diseases;" 8vo., London, 1834. "Sheep: its breeds, management, and diseases, with the Mountain Shepherd's Manual;" 8vo., London, 1837. He edited the last edition of the "Complete Grazier," than which no more useful work has ever appeared. In 1840, he wrote "The Dog;" 8vo., London; and in 1847, "The Pig: a treatise on the breeds, management, and medical treatment of swine, with instructions for curing ham and bacon." This work was not finished when the author died, and was a posthumous production. In 1838, Mr. Youatt published a most feeling and benevolent work, "The obligation and extent of humanity to brutes;" 12mo., London: an honour to his head and his heart.

The works of Mr. Youatt have always been very deservedly esteemed, as containing a varied and entertaining knowledge in a very large amount of the different subjects that were treated. If the method of arrangement be deficient and the matter prolix and lengthened, the drawback is relieved by the great variety of statement and of illustration. The information had been most extensively collected, and is very appropriately used. Our own opinion reckons "The Pig" as the best of Mr. Youatt's works, and that no equal treatise has yet appeared on that subject. The work "On Cattle" is very useful.

Mr. Youatt showed himself to be an indefatigable tradesman, mild and unassuming. The special purpose is always kept in view, and no useless digressions are attempted. The lengthy treatment of some points may be objectionable, but the general value is always sustained and makes compensation. The death of the author in 1847 was much lamented, not only by the professional fraternity, but by every member of society to whom he was known. His character was universal in all circumstances of professional and general department.

CCCCXLVII. STEPHENS, 1848.

Thos. Stephens, Esq., of Tyrrell Lodge, Staffordshire, wrote "Essays on Agriculture." I. Cattle and sheep. II. Agricultural Drainage. III. Ancient Agricultural Literature. IV. High Farming. These essays appeared first in the *Quarterly Review*, from which they were reprinted, and now form a volume with the title of "Essays on Agriculture."

These essays are very creditable, and show the author to have taken much more than an amateur view of the subjects, and to have gathered a knowledge very far beyond the station of life which he occupied. He advocates deep draining on all soils, and fixes four feet as the minimum depth, which may have arisen from the comparatively porous soils he had got to deal with.

He uses very minute philosophical reasoning, and illustrates draining of land by observing the absorption of water by the sponge on a shaving table; but such nicety does not detract much from the substantial merits. The subjects are well understood and very sensibly discussed.

LIVING AUTHORS,

OR SUPPOSED TO BE LIVING.

CCCCXLVIII.—Blaikie, 1819.

Francis Blaikie, a native of Tweedside, was first noticed as a gardener in the Royal Gardens at Kew, whence he was appointed to be manager of the farming and horticultural establishments of the Earl of Chesterfield, at Bretbey Park, in South Derbyshire. At the abandonment of that establishment by the death of the Earl, Mr. Blaikie became land-steward to Mr. Coke of Holkham, where he found scope for enterprize, and was largely employed in the improvements of that property. He wrote "An essay on the conversion of arable land into pasture, by transplanting turf; also the method of preserving Swedish turnips by placing; and a descriptive account of Norfo'k ploughing;" London, 1819, 12mo. "An essay on the management of farm-yard manure, and formation of compost; with a plate, and description of the inverted horsehoe, invented by the author;" London, 1819, 12mo. "A treatise on the management of hedgerows and hedgerow timber; pointing out the injury done to the timber trees by close pruning, and describes the pruning by shortening luxuriant branches;" London, 1820, 12mo. "A treatise on mildew, and the cultivation of wheat; including hints on the use of lime, chalk, marl, clay, gypsum, &c.;" London, 1821, 12mo. "On smut in wheat;" London, 1822, 12mo. Mr. Blaikie's practical intelligence is distinguished by a very sound judgment and a reasonable observation. It is to be regretted that the author did not compose a systematic work of agricultural comprehension, which would have contained his extensive and varied knowledge, and relieved his mind of an accumulated burden. Essays, treatises, and pamphlets are with difficulty made known, and looked on as insignificant. For our own part, we regard such authors of enlightened practice as greatly advanced before chemical theorists and vague idealogies.

CCCCXLIX.—Cooke, 1819.

Layton Cooke, land and timber surveyor, has written "The grazier's manual; being tables showing the nett weight of cattle, calves, sheep, and swine, on new principles;" London, 1819, 12mo. A neat volume of most useful materials, and has passed into several editions.

CCCCL.—Bland, 1827.

William Bland, jun., has written "The principles of agriculture;" London, 1827, 8vo. The volume is in 10 chapters of 128 pages, and treats the processes of cultivation in a very concise and enlightened manner. The author holds to practice, and observes the results.

CCCCLI.—Johnson, 1830.

Cuthbert W. Johnson, Esq., F.R.S., barrister-at-law, has written "On the uses of salt for agricultural purposes;" 8vo., price 5s., London, 1820. "On the use of bones as a manure;" 8vo., London, 1836. "On the advantages of railways to agriculture;" London, 8vo., 1837, price 1s. 6d. "On liquid manures;" 1837, 8vo., London. "On fertilizers;" 8vo., London, 1839, price 8s. "On increasing the depth of soils; 8vo., London, 1840. "On gypsum as a fertilizer;" 8vo., London, 1840. "On saltpetre and nitrate of soda as fertilizers;" 8vo., London, 1840. "The farmer's encyclopædia and dictionary of rural affairs;" 8vo., London, 1842. "The farmer's medical dictionary for the diseases of animals;" 12mo., London, 1845. "The English rural spelling book;" 12mo., London, 1846. "On guano as a manure;" 8vo., 1s. 6d. "On increasing the demand for agricultural labour;" 8vo., 1s. 6d. "On the cottages of agricultural labourers;" assisted by Edward Cresy, architect, 8vo., price 1s. 6d. "Agricultural chemistry, for young farmers;" 12mo., price 1s. "The cottage farmer's assistant in the cultivation of his land, and book of the household;" 12mo., price 1s. "Calendar for young farmers;" 12mo., price 1s., containing directions for every month of the year. "The modern dairyman and cowkeeper;" containing the cow, her breed and points, treatment, cleanliness, food, land, diseases, suckling, dairy, cow-house, milk and butter, cheese making, Cheshire, Stilton, &c., &c."

The works of Mr. C. Johnson contain a mass of very valuable intelligence that has been well selected by the author, and clearly set in order for the public use. The essays are short and pithy, containing what is necessary, without any useless adhesions to create bulk without adding knowledge. The larger works, "The farmer's dictionary" and "The dairyman," are not surpassed by any works on the subject of agriculture that have yet issued from the bubbling press of rural authorship. The information is most correct, well

arranged, and handsomely expressed; the authorities are quoted for each demonstration, and the author's opinion concludes. He seems most at home on the subject of manures, which is certainly the most inviting part of agricultural practice to the person who looks at the sources of its operation. The author much resembles Mr. Rham in steadily weighing the best practice with an innovating theory; he advances further in the path of chemistry, but his conclusions are not violent, or wholly void of foundation. He has the art of selecting the strong parts of any proposition, and of placing it in a comfortable position. He has read and thought to much purpose, and used well the power of discrimination. Not having been bred in the dogmas of agriculture, he has escaped its trammels; and not having run into the opposite extreme of scientific disengagement, his works form a medium of great value, and a source of important knowledge to the enlightened practitioner. This statement is the expression of a general opinion.

CCCCLII.—Low, 1834.

David Low, Esq., is Professor of Agriculture in the University of Edinburgh: he has written "Elements of practical agriculture; 8vo., Edin., 1834. "The breeds of domestic animals of the British islands;" 2 vols., folio, London, 1842. "An inquiry into the nature of simple bodies of chemistry;" 8vo., London, 1844. "On landed property, and the economy of estates;" 8vo., London, 1844. "On the domesticated animals of the British islands; comprehending the natural and economical history of species and varieties—the description of the properties of external form, and observations on the principles and practice of breeding;" 8vo., London, 1845.

The first-mentioned work has reached the fifth edition, and will continue to be a standard book on the subject of general agriculture. The arrangement is clear and definite, and the different objects are allotted the due extent of consideration. In the division of the subject, this work exceeds any predecessor. The work on landed property conveys much valuable information, which is applicable to most cases of occurrence. There may be a want in not treating the qualifications and duties of the manager of estates of land, in which we believe the author is employed. The investigation of chemical bodies does not interest the farmer, and the breeds of domesticated animals is removed by the price and extent of the subject far beyond the common entertainment. But the merit is acknowledged. Mr. Low writes very practically, clearly, and sensibly. His name is deservedly popular.

CCCCLIII.—Baxter, 1834.

J. Baxter, Lewes, has compiled and published "The library of agricultural and horticultural knowledge, with a memoir of Mr. Ellman, of Glynde, and an appendix containing a farmer's and a gardener's calendar, and a collection of useful tables;" London, 1834, 8vo. The work is alphabetically arranged, and contains much useful matter that is interesting to the farmer and gardener. Mr. Ellman may have been the chief person concerned, and his very enlightened practice could not fail to produce something good in the profession which he had long adorned. The work has passed through several editions, and enjoys a very considerable reputation. Its deservings are above mediocrity.

CCCCLIV.—Lawson, 1834.

Peter Lawson and Son, seedsmen in Edinburgh, have written "The agriculturist's manual; being a familiar description of the agricultural plants cultivated in Europe, including practical observations respecting those suited to the climate of Great Britain, and forming a report of the Agricultural Museum in Edinburgh;" 1838, 8vo. The book contains 430 pages, and describes the cereal grasses scientifically and practically, the luguminous plants, the herbage and forage plants, the leguminous forage vegetables, cruciferous plants, root plants tuberous and fusiform, plants used in the arts, for timber, and for horticulture. A list follows of models and implements, garden productions, and list of contributors. The scientific grower of vegetables will be much delighted with this book, which pleases his fancy and directs his art. Even the mere practitioner will derive advantage by the possession of the work, the object of which is science with practice, and the purpose is well performed. The scientific portion of the work is plainly worded, and easily understood.

CCCCXV.—Poppy, 1834.

Charles Poppy, farmer at Wilnesham, Suffolk, has written "Practical hints on burning clay and sods; surface soil of fallows; also on the employment of the poor;" London, 8vo. The essay extends to 28 pages, detailing the mode of burning clay and sods, the expense and advantages. No doubt can exist that all surface lands will be benefited from being heated and torrified; and it may be conceived that incinerated substances, as lime and clay, impart the benefit by raising the temperature of the ground by means of the heat retained from the combustion. And the quantity or degree of benefit conferred will depend on the power of the burnt substance to retain heat, and on the capability of the soil to which it is applied to imbibe and retain caloric for future use. Clay being a very

bad conductor, will convey little benefit as a manure, as experience has shown; caloric will separate the particles, but will not remain in the sundered fragments. Our own practice often proposed to reduce into ashes the surface clods of clay fallows, by mixing with lime cinders, and igniting with the use of water. The ashes would be of two kinds, and convey caloric to the soil in combination. The benefit will be proportional with its powers of imbibing and retaining the heat.

CCCCLVI.—Rennie, 1834.

James Rennie, A.M., professor of zoology, King's College, London, has written "The handbook of agriculture in principle and practice, for the use of schools and allotment tenants;" London. 1834, 16mo., price 1s. 3d. stitched. The pages are 92, detailing the science, art, and practice of agriculture in the cultivation of plants and management of animals. The directions are very sensible and judicious, but contain nothing new or worth any remark. The plan of a labourer's cottage is given from those devised by Mr. Menteath, of Closeburn, in Dumfriesshire, with the sleeping-apartment on the ground floor, the ideas not being able to ascend to the height of ten feet in a second storey of apartments. This moderate height stops all northern ideas on the subject of cottages.

CCCCLVII.—Hutt, 1838.

William Hutt, Esq., M.P., wrote "Key to agricultural prosperity—state and prospects of British agriculture;" price 2s. 6d., in 247 octavo pages. This essay resulted from an inquiry into agricultural distress, in 1836, by a committee of the House of Commons, and forms a compendium of their labours. After the general peace, many keys were found to open the lock of agricultural depression, which arose from the altered circumstances of the civilized world: not one succeeded, and the handle has yet to be made. Our own opinion always coincided with that of the late Earl Grey - that a prompt adjustment of rent was the only key to solve the difficulty, and experience has confirmed the just sentiment. It has been done of necessity, and might have come from a sure prescience.

CCCCLVIII.—Morton, 1838.

John Morton, Whitfield, near Berkeley, Gloucestershire, has written "On the nature and property of soils, and on the rent and profits of agriculture;" London, 1839, 8vo. And, along with Joshua Trimmer, "An attempt to estimate the effects of protecting duties on the profits of agriculture;" London, 1845, 8vo. These works have raised the name of the author to a high place in the agricultural world, which has been supported by every attachment of practice. Mr. Morton is known as the projector and conductor of Earl Ducie's example farm, where, from an almost tenantless waste, a farm of 240 acres has been converted into a productive ground of no common quality. The outlay of money was very considerable, and done to show that land will repay every judicious expenditure, and can be continued in that remunerative condition by an enlightened routine of cultivation. Draining and manuring have been the chief agents of operation; and when judiciously performed, a certain success must attend. The most reputed improvements have been executed on the land, and upon the farm buildings, roads, and water-courses. The success has been most splendid; perhaps no parallel exists in Britain to the quantity of green crops which grow upon that farm, and which yield the profits and support the fertility. An increased rent of 15s. an acre amply pays the interest of the capital expended, besides an annuity for the gradual extinction of the outlay. Much more labour is employed, and in making the improvements activity was employed and remunerated.

A most important lesson is taught by the example of Mr. Morton—to concentrate the means on any point that are superior to the resistance that is opposed, and by dint of power and pith, to compel success, and rob fortune of its favours. By this method, any lands will yield a similar product in proportion to quality and circumstances. The value of land may be doubled. and the national resources indefinitely increased.

In the book "On soils," the author shows an extensive geology, and a most enlightened practical acquirement. On these subjects the work will continue a standard production. In the work on protective duties and profit, the principles are set forth which experience is daily confirming. The author beheld a steady horizon.

CCCCLIX.—Main, 1839.

James Main, A.L.S., Chelsea, has written "Poultry, breeding, rearing, and fattening;" the contents are—introductory remarks, pea-fowl, history and breeding, swan, turkey, goose, duck, fowl, capering of fowls, guinea-fowl, pheasant, section of a turkey-house, fowl-house, fattening-house, crops for poultry, &c., &c.; London, 8vo., price 6s. "The young farmer's manual; showing the principles and practice of agriculture, as applicable to turnip-land farms in the south of England, with observations and remarks on cattle, plants, and implements;" London, 1839, 8vo. The author has written some works on botany and forest planting.

The book on poultry is one of the best of the kind, and may justly claim a superiority over larger and more vaunted works. Plain truthful practice is the recommendation of it, which forms the chief merit of any work on practical matters. "The young farmer's manual" contains the routine business of common farming in a most eligible form, in small compass, and appropriate language of expression. No book in the agricultural world conveys a greater quantity of sound intelligence, which has been gathered from enlightened practice and attentive observation. The author makes brief statements, but ample for use, and sufficient for the purpose. Our mite of approbation has never been better bestowed.

CCCCLX.—Hodges, 1840.

Thomas Law Hodges, Esq., M.P., has written "The use and advantages of Pearson's draining plough;" price 1s. Plough draining of land may be very legitimately placed alongside the machine reaping of corn crops; in some very few particular cases both applications will be somewhat serviceable, and render an assistance that will be scarcely remunerative of the cost. The subsoil of lands being rocky, stony, compact, and hardened, will defy the power of the draining plough, and confine its use to soft strata of every denomination. So will the reaping machines be confined to level grounds and upright standing crops, and banished from hilly lands and ridged surfaces. These objections are irremovable.

CCCCLXI.—Spooner, 1840.

W. C. Spooner, a veterinary surgeon, near Southampton, has written "A treatise on manures, their comparative and economical qualities, with the principles which should influence and regulate their application;" London, 1840, 8vo. There is contained the prize essay, by the author, on the use of the superphosphate of lime produced with acid and bones for manure. The author is known as a distinguished member of the veterinary profession, and in the above essay he has added to the reputation on that head. The remarks and sentiments are very just, correct, and practical.

CCCCLXII.—Jackson, 1840.

James Jackson, of Pennycuick, near Edinburgh, author of several prize essays in Scotland, has written "A treatise on agriculture and dairy husbandry;" Edin., 1840, 8vo. This work is in 116 large octavo pages, and treats arable management only, with a short treatise on dairying. The animals of the farm are not entered. It is a very sensible production, plain, correct, and simply practical; so much so, that no analysis is given of any manuring substance, except of bone dust, and that is subjoined in a note. The writer seems to have thought that the value of the article can be conveyed without the appendage of the chemical constituents; and he is right. His practical opinions and directions need no recommendation beyond the perusal.

CCCCLXIII.—Sproule, 1842.

John Sproule, Ireland, editor of Irish Farmer's Journal, has written "A treatise on agriculture; comprehending the nature, properties, and improvement of soils, the structure, functions, and cultivation of plants, and the husbandry of the domestic animals of the farm;" Dublin, 1842, 8vo. "An essay on the growth and management of flax in Ireland," which obtained the gold medal of the Royal Dublin Society; Dublin, 1844, 8vo. The first work is a most respectable performance, well arranged, correct in the description, and ample in the detail. Ireland has not produced any equal work, and Britain has not many that are far advanced beyond its worth. It comprehends the whole business of the farm, and is therefore superior to many works that treat one part of the farming business. The enlightened practice of agriculture has never been more described for common adoption.

The essay on flax is a pamphlet of 40 octave pages, and well deserved the prize which it gained. The author does not encumber any work with scientific quotations of analytical contents; he prefers the use of practical results and illustrations, and gives in the appendix the statements of chemistry on the subject of description. The body of the work is thus clear, and the appendix may be used or not.

CCCCLXIV.—Squarry, 1842.

Charles Squarry has written "A popular treatise on agricultural chemistry, intended for the use of the practical farmer;" London, 1842, 8vo., price 5s. This author is thought to have simplified the relation of chemistry and agriculture with great skill and ability, and rendered the subject less abstruse for the common comprehension. But a subject may be very fully comprehended, and still remain beyond application; the connection may be too fine and minute for the tear and wear of utility. The author describes the usual scientific subjects—soil, and manures, and plants. Lime is very briefly mentioned, and nothing added to its former character. The same may be said of other matters.

CCCCLXV.—Torrington, 1842.

Viscount Torrington has written "On farm buildings, with a few observations on the state of agriculture in the county of Kent;" price 5s. The observations on practical farming that are made in this treatise are judicious and correct, but on the subject of farm buildings his Lordship is behind the age, as he applies the power of horses to impel the thrashing machinery, and long after steam has been used much more advantageously for the purpose. Animal labour is a large advance beyond human drudgery; and a much larger progression is made when an active agent is raised from inanimate bodies, and made to perform the functions of animated life. The feeding-house, devised in the plan of farm buildings, contains too many animals, and consequently a very heated air will be respired. Nothing worth imitation has been exhibited by the design or description of the wants of farmeries.

CCCCLXVI.—Green, 1842.

Robert Green, farmer, has written "On underdraining wet and cold lands;" price 3s. 6d. This book has been very little noticed, though written on a most important subject, as the title comprehends all the lands that require to be drained. If the author has adopted the shallow system, or the deeper percolations, the process is much the same, only varied in the frequency and depth of drains, in order to answer the contemplated object.

CCCCLXVII.—Donaldson, 1842.

John Donaldson has written "A treatise on manures and grasses;" London, 8vo., 1842. "The cultivated plants of the farm; containing the description, culture, and use of the grains, legumes, tubers, and esculents;" London, 12mo., 1847. "The enemies to agriculture, botanical and zoological, description and extirpation;" London, 12mo., 1848. "Land steward and farm bailiff; detailing from actual practice the duties and qualifications of both offices;" London, 8vo., 1848. "Improved farm buildings; containing 72 designs of farmeries, dwelling houses, and cottages;" London, 1851, 4to. "Clay lands and loamy soils; containing the geological character, the chemical nature, natural properties, and cultivated use of the different formations;" London, 1852, 12mo. "Soils and manures; containing the soils, cultivation, and fertilising;" London, 1852, 12mo.

The book of farm buildings contains 72 original designs on copper, of farmeries, square, circular, and polygonal, dwelling-houses and cottages, and is the most comprehensive work of the kind. The treatise on clay lands and loamy soils gives the most extensive description of clays that has yet been made, both in a scientific and practical view. The various qualities are largely investigated. Also "The country gentleman; containing the arrangements of the park, the policy, and the farm;" 12mo. "On landed property;" large 8vo.

CCCCLXVIII.—Grey, 1842.

Robert Hyde Grey has written "Scotch farming in the Lothians; a letter addressed to the editor of the Manchester Guardian;" London, 8vo., 1842. "Scotch farming in England; a second letter to the Manchester Guardian;" London, 8vo., 1842. These letters reiterate the tales that have been often told—that superior cultivation prevails under favourable circumstances, under good soils, long leases, and capital in the hands of the farmers. The climate is also very favourable to green crops. Much of the Scotch farming may be used in England, in the north and western parts, where the influences resemble.

CCCCLXIX.—Lance, 1842.

Edward Jarman Lance, has written "On the food of plants, in which is considered—the sources from which plants derive the elements of their composition; the mode in which farm-yard dung strengthens the growth of agricultural crops; the mode in which other manures, whether singly or combined, act upon vegetation." To which is added, one essay on the drill-husbandry of turnips; London, 1842, 12mo. "The golden farmer; being an attempt to unite the facts pointed out by nature in the sciences of geology, chemistry, and botany, with practical operations of husbandmen, to enable them to grow more corn, and increase the employment of the labourer;" London, 8vo., 1831. "The hop farmer," "The cottage farmer," and many parts of Baxter's agricultural library. Mr. Lance originated "The humus and carbon manures," and is a writer of the highest class. "The hop farmer" is allowed to be the best work on the subject.

CCCCLXX.—Johnston, 1842.

James F. W. Johnston, Professor of agriculture in the provincial college of Durham, has written "Elements of agricultural chemistry and geology;" Edin., 8vo., 1842. "Catechism of agricultural chemistry and geology; Edin., 16mo., 1844. "Lectures on agricultural chemistry and geology, with an appendix;" Edin. and London, 8vo., 1844. "Contributions to scientific agriculture;" London, 8vo., 1849. "Experimental agriculture; being the results of past and suggestions for future experiments in scientific and practical agriculture;" Edin., 1849, 8vo. "Notes on North America, agricultural, economical, and social;" 2 vols, Edin. and London, 8vo., 1851.

The author was engaged by the Agricultural Society of Scotland to give stated lectures on agricultural chemistry for several successive years. The success was as large as may be expected from the subject, and the connection of the two sciences has been illustrated probably as far as modern knowledge will allow. That it has fallen short of any valuable practical application does not argue that none will be reached, when a more intimate field has been opened, and a closer inquiry afforded.

CCCCLXXI.—Ransome, 1843.

James Allen Ransome, of the firm of Ransome and Co., iron-foundry, Ipswich, has written "The implements of agriculture;" London, 8vo., 1843. This work is worthy of the long-established celebrity enjoyed by the above firm as makers of agricultural implements; it has no equal in the agricultural world, and outstrips all works of the kind in the arrangement of the implements, delineation, descriptions, and practical character. The author's remarks are very valuable. It may be remarked as curious that carts and waggons are not mentioned as agricultural implements; the book does not comprehend them.

CCCCLXXII.—Hunter, 1843.

James Hunter, plough-maker, Edinburgh, has written "The improved Scotch swing-plough, with practical illustrations on plough-making and ploughing, and many other observations in connection with agriculture;" Edin., 8vo., 1843. The swing-plough is very well explained in all its parts, and correctly delineated in the skeletons. The beam appears to be very short, and the bend very near to the heel of the plough, at the back end of the sole plate. A lever power is no doubt gained by a long handle and a short beam; but it may be over done, and the just proportion destroyed.

CCCCLXXIII.—Hutchinson, 1844.

Henry Hutchinson, land-agent, valuer, and professor of draining, Walcot, near Stamford, has written "A treatise on the practical drainage of land;" London, 1844, 8vo. The work contains 207 pages, with diagrams of drained lands on the shallow and deep systems, as practised by the author. The contents show a very sound professional knowledge, with a correct judgment on the practical subject. No superior work has appeared on the draining of lands on the improved system of frequent cavities, in order to render effectual the performance of drying the ground.

CCCCLXXIV.—Rigg, 1844.

Robert Rigg, F.R.S., has written "Experimental researches, chemical and agricultural, showing carbon to be a compound body made by plants, and decomposed by putrefaction;" London, 1844, 8vo. The author fills 204 pages with very learned dissertations, but arrives at no practical result, even if carbon be composed and destroyed as is represented.

CCCCLXXV.—Hannam, 1844.

John Hannam has published "The economy of waste manures; a treatise on the nature and use of neglected fertilizers;" London, 1844, 12mo. The treatise is valuable, and the author is known as the writer of several prize essays.

CCCCLXXVI.—Burke, 1844.

J. F. Burke has written "Farming for ladies; or, a guide to the poultry yard, the dairy, and the piggery;" 12mo., London, 1844. "The muck manual," "British husbandry;" 2 vols., which were published in monthly numbers by the Society for the Diffusion of Useful Knowledge. It is a very useful work, showing and recommending the most approved practices upon incontestible grounds of preference. The two small works above-mentioned are very concise channels of agreeable intelligence. The author is noted in the profession of agriculture.

CCCCLXXVII.—Milburn, 1845.

M. M. Milburn, land-agent, near Thirsk, Yorkshire, has written "Prize essay on guano;" 8vo., London and York, 1845. "The cow, with the dairy and breeding cattle;" 12mo., London, 1851. "Sheep, breeds and management;" 12mo, London, 1852. These works are to be noted for sound sense, and very judicious statements. The practical information is of the highest order, and free of any affectation beyond the necessary scientific reference. Practice is never cast behind in order to follow a new path that is not yet open, and but barely accessible.

CCCCLXXVIII.—Williams, 1845.

E. Leader Williams, C.E., acting engineer to the Severn Company, has written "On land-draining and irrigation; and on the application of drainage water as a motive power to machinery for agricultural purposes;" price 1s. 6d. This small work is very true on the subject.

CCCCLXXIX.—Willoughby D'Eresby, 1845.

Lord Willoughby D'Eresby has written "On ploughing by steam;" price 2s. 6d. Perseverance continues the attempts to reach the point of ploughing by steam; but like plough-draining and machine-reaping of grain, ploughing in the different forms may require a more manageable agent than condensed steam let loose from control.

CCCCLXXX.—Trimmer, 1845.

Joshua Trimmer, F.G.S., has written "Practical geology and mineralogy;" London, 8vo. "Practical chemistry for farmers and land-owners;" London, 12mo. "On the improvement of land as an investment for capital;" London, 1847, 8vo., price 1s. And, along with Mr. Morton, "An attempt to estimate the effects of protecting duties on the profits of agriculture;" price 2s., and supplement 1s. The author is known as an able practical geologist, and a person of very sound views on other subjects. Though no doubt can exist of the improvement of land as an investment of capital, yet there must be a combination of favourable circumstances which have passed away from existence, under which were effected the large improvements quoted by the author.

CCCCLXXXI.—Martin, 1845.

W. C. L. Martin has written "Our domestic fowls," "The history of the horse," and "Treatise on the ox." These treatises are very valuable; probably the natural history learning of the author predominates over the practical utility.

CCCCLXXXII.—Roberts, 1845.

Owen Owen Roberts has written "Observations on thorough drainage, as the basis of agricultural prosperity;" London, 1845, 12mo. The author reasons well, and argues stoutly in favour of close draining and subsoil ploughing. The two pamphlets by the author, on the corn laws and agricultural economy, are not practical notices.

CCCCLXXXIII.—Mechi, 1845.

J. Mechi has compiled a thin quarto volume of letters on agricultural subjects, chiefly relating to drainage of clay lands. The author is an amateur cultivator of the soil, and has attracted much observation. His ideas show too much adhesion to one locality; and though they are not sheer idle fancies, the general application may be doubted. Such persons are useful in any art.

CCCCLXXXIV.—Dickson, 1846.

James Hill Dickson has written "A series of letters on the improved mode of the cultivation and management of flax;" London, 1846, 8vo. The intelligence is very sound, and correctly estimated.

CCCCLXXXV.—Roberts, 1846.

G. Roberts has written "A catechism of agriculture, by question and answer, on the most approved modes of cultivating the earth." The work is one of Pinnock's catechisms, and bound in a volume of these collections. It should have had an earlier date, but the work did not catch our notice sooner. The extent of it is too small to contain the circle of agriculture, even in a contracted form.

CCCCLXXXVI.—Falkner, 1846.

F. Falkner, Esq., has written "The muck manual, for the use of farmers; a practical treatise on the chemical properties, management, and application of manures;" London, 1846, pp. 318, sewed, 5s. This is a very neat and comprehensive work, and a most creditable performance.

CCCCLXXXVII.—Bacon, 1846.

R. N. Bacon has written "Prize essay on the agriculture of Norfolk;" 8vo., price 10s. 6d. This work is much esteemed, and contains the sentiments of a sound practical judge, and of an enlightened writer.

CCCCLXXXVIII.—Passy, 1846.

H. Passy has written "Essay on large and small farms;" 12mo. This essay has never got into any notice.

CCCCLXXXIX.—Eyton, 1846.

T. C. Eyton, Esq., has written "The handbook of Hereford cattle;" in two vols., 8vo. The work contains the list, pedigrees, and portraits of the most celebrated bulls of that breed, and the prices at which many of them were sold. It is a very entertaining book to those connected with Hereford cattle.

CCCCXC.—Topham, 1846.

John Topham, M.A., rector of St. Andrew, Droitwich, has written "Chemistry made easy, for the use of agriculturists;" London, stitched, 16mo. The knowledge of chemistry is undoubted; the application of it in the field of agricultural practice yet remains to be found.

CCCCXCI.—Antisell, 1846.

Thomas Antisell has written "A manual of agricultural chemistry;" 12mo., sewed, price 2s. "Irish geology;" 18mo., price 6d., sewed; in a series of chapters containing an outline of the science of geology, and a description of the various rocks distributed on the surface of the island, with some remarks on the climate. These little works are worth notice.

CCCCXCII.—Jones, 1847.

David F. Jones has written "Turnip husbandry; a series of papers on the culture and application of that important root, with a preface by Professor Johnston of Durham. The author describes most correctly the most approved cultivation and use of the turnip plant.

tion of very sound matter, placed in a very neat order, well exemplified and illustrated and at a very convenient price. It is a very useful arrangement to have each subject of the art separately discussed, and forming a treatise by itself. The matter is generally better arranged, and more lucidly treated than when placed in the body of a large volume of general compass.

CCCCXLVI.—Youatt, 1847.

W. Youatt spent a most useful and laborious professional life of upwards of thirty years in adorning the veterinary art, of which he was a very distinguished professor. He was a native of Devonshire, and obtained the notice of the leading members of the Society for the Diffusion of Useful Knowledge, and also of the London University College, where he was employed to deliver professional lectures, but which were not followed up. He also lectured privately to young students, and entered into several designs and partnerships in order to promote the art. He edited the "Veterinarian" Journal, and wrote in it a number of highly valuable papers, which have been published.

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Mr. Youatt showed himself to be an indefatigable tradesman—mild and unassuming. The special purpose is always kept in view, and no useless digressions are attempted. The lengthy treatment of some points may be objectionable, but the general value is always sustained and makes compensation. The death of the author in 1847 was much lamented, not only by the professional fraternity, but by every member of society to whom he was known. His character was universal in all circumstances of professional and general deportment.

CCCCXLVII.—Gisborne, 1848.

Thos. Gisborne, Esq., of Yoxall Lodge, Staffordshire, wrote "Essays on Agriculture." I. Cattle and sheep. II. Agricultural Drainage. III. Ancient Agricultural Literature. IV. High Farming. These essays appeared first in the *Quarterly Review*, from which they were reprinted, and now form a volume with the title of "Essays on Agriculture."

These essays are very creditable, and show the author to have taken much more than an amateur view of the subjects, and to have gathered a knowledge very far beyond the station of life which he occupied. He advocates deep draining on all soils, and fixes four feet as the minimum depth, which may have arisen from the comparatively porous soils he had got to deal with.

He uses very minute philosophical reasoning, and illustrates draining of land by observing the absorption of water by the sponge on a shaving table; but such nicety does not detract much from the substantial merits. The subjects are well understood and very sensibly discussed.

LIVING AUTHORS,

OR SUPPOSED TO BE LIVING.

CCCCXLVIII.—Blaikie, 1819.

Francis Blaikie, a native of Tweedside, was first noticed as a gardener in the Royal Gardens at Kew, whence he was appointed to be manager of the farming and horticultural establishments of the Earl of Chesterfield, at Bretbey Park, in South Derbyshire. At the abandonment of that establishment by the death of the Earl, Mr. Blaikie became land-steward to Mr. Coke of Holkham, where he found scope for enterprize, and was largely employed in the improvements of that property. He wrote "An essay on the conversion of arable land into pasture, by transplanting turf; also the method of preserving Swedish turnips by placing; and a descriptive account of Norfo'k ploughing;" London, 1819, 12mo. "An essay on the management of farm-yard manure, and formation of compost; with a plate, and description of the inverted horsehoe, invented by the author;" London, 1819, 12mo. "A treatise on the management of hedgerows and hedgerow timber; pointing out the injury done to the timber trees by close pruning, and describes the pruning by shortening luxuriant branches;" London, 1820, 12mo. "A treatise on mildew, and the cultivation of wheat; including hints on the use of lime, chalk, marl, clay, gypsum, &c.;" London, 1821, 12mo. "On smut in wheat;" London, 1822, 12mo. Mr. Blaikie's practical intelligence is distinguished by a very sound judgment and a reasonable observation. It is to be regretted that the author did not compose a systematic work of agricultural comprehension, which would have contained his extensive and varied knowledge, and relieved his mind of an accumulated burden. Essays, treatises, and pamphlets are with difficulty made known, and looked on as insignificant. For our own part, we regard such authors of enlightened practice as greatly advanced before chemical theorists and vague idealogies.

CCCCXLIX.—Cooke, 1819.

Layton Cooke, land and timber surveyor, has written "The grazier's manual; being tables showing the nett weight of cattle, calves, sheep, and swine, on new principles;" London, 1819, 12mo. A neat volume of most useful materials, and has passed into several editions.

CCCCL.—Bland, 1827.

William Bland, jun., has written "The principles of agriculture;" London, 1827, 8vo. The volume is in 10 chapters of 128 pages, and treats the processes of cultivation in a very concise and enlightened manner. The author holds to practice, and observes the results.

CCCCLI.—Johnson, 1830.

Cuthbert W. Johnson, Esq., F.R.S., barrister-at-law, has written "On the uses of salt for agricultural purposes;" 8vo., price 5s., London, 1820. "On the use of bones as a manure;" 8vo., London, 1836. "On the advantages of railways to agriculture;" London, 8vo., 1837, price 1s. 6d. "On liquid manures;" 1837, 8vo., London. "On fertilizers;" 8vo., London, 1839, price 8s. "On increasing the depth of soils; 8vo., London, 1840. "On gypsum as a fertilizer;" 8vo., London, 1840. "On saltpetre and nitrate of soda as fertilizers;" 8vo., London, 1840. "The farmer's encyclopædia and dictionary of rural affairs;" 8vo., London, 1842. "The farmer's medical dictionary for the diseases of animals;" 12mo., London, 1845. "The English rural spelling book;" 12mo., London, 1846. "On guano as a manure;" 8vo., 1s. 6d. "On increasing the demand for agricultural labour;" 8vo., 1s. 6d. "On the cottages of agricultural labourers;" assisted by Edward Cresy, architect, 8vo., price 1s. 6d. "Agricultural chemistry, for young farmers;" 12mo., price 1s. "The cottage farmer's assistant in the cultivation of his land, and book of the household;" 12mo., price 1s. "Calendar for young farmers;" 12mo., price 1s., containing directions for every month of the year. "The modern dairyman and cowkeeper;" containing the cow, her breed and points, treatment, cleanliness, food, land, diseases, suckling, dairy, cow-house, milk and butter, cheese making, Cheshire, Stilton, &c., &c."

The works of Mr. C. Johnson contain a mass of very valuable intelligence that has been well selected by the author, and clearly set in order for the public use. The essays are short and pithy, containing what is necessary, without any useless adhesions to create bulk without adding knowledge. The larger works, "The farmer's dictionary" and "The dairyman," are not surpassed by any works on the subject of agriculture that have yet issued from the bubbling press of rural authorship. The information is most correct, well

DXVII.—Kemp, 1852.

T. Lindley Kemp, M.D., has written "Agricultural physiology, animal and vegetable, designed for the use of practical agriculturists;" London and Edin., 1852. This is an excellent work, clearly arranged, and very systematically detailed. It is the ablest thing of the kind, though the use of it in practice may be distant.

DXVIII.—Nesbit, 1852.

J. C. Nesbit, F.C.S., F.C.S., analytical chemist, and principal of the Chemical and Agricultural Academy, Kennington, London, has written "An essay on the composition and fertilizing qualities of Peruvian guano, and pointing out the best mode of its application to the soil;" price 1s., London, 1852. This essay excels all the former treatises on the very valuable article of guano, both in the scientific comprehension of its properties, and the applicable value of the virtues it contains. Nothing is left to vague conjecture or to speculative trust; all is placed on the same grounds of established laws, both in chemistry and practice. The sale has been rapid and extensive, but not beyond the merits of the essay.

DXIX.—Willett, 1852.

John Willett has written "Fork and spade husbandry;" how a man may get a good living off two acres of land. "A treatise on feeding and fattening pigs," and "How to build a good house for £65." These treatises are deserving of much commendation.

DXX.—Solly, 1852.

Edward Solly, jun., F.R.S., F.L.S., has written "Rural chemistry; an elementary introduction to the study of the science in its relation to agriculture;" London, 12mo., 1843. This author writes well, reasons acutely, and concludes safely. No writer has displayed a more correct knowledge of the parts of chemistry that are connected with the cultivation of the earth, and these branches are explained, and placed in a very concise and intelligible form.

DXXI.—Cooke, 1852.

George Wingrove Cooke, barrister at law, has written "A treatise on the law and practice of agricultural tenancies, with forms and precedents;" London, 1850, 8vo. The book occupies 554 pages, and contains a large collection of legal decisions, forms, precedents, and provincial customs. There is much wading in order to arrive at a useful truth. The time is now come to disentangle negotiations such as a farming tenancy from all feudal entanglements, and place them on sound economical principles, and the intelligences of common reason, and simple justice.

DXXII.—Caird, 1852.

James Caird has written "English agriculture in 1850 and 1851;" one volume, 8vo. Mr. Caird, of Baldoon, Wigtonshire, attracted notice by his evidence, against protective duties on foreign corn, his superior culture of the soil, along with liberal tenancy and improving leases. He had met with favourable circumstances in the soil of his own farm, in the climate, and the circumstances of time and obligation under which he was placed; and he inferred that similar results would be everywhere produced by the use of the same means. It is not doubted that the results would be similar in proportion to circumstances, but not by any means so great in all cases as in one detached application. The reasoning is clear, but the strict analogy does not hold.

The writer was employed as commissioner for the *Times* newspaper, to journey over England, and make reports of the farming in each county, and any locality or farm that enjoyed a special celebrity. The reports appeared in the daily paper, and were afterwards collected into the volume now mentioned. It contains many sensible remarks, and very shrewd observations, showing a more than lightened mind and sound understanding.

DXXIII.—Normandy, 1852.

A. Normandy has written "Farmers' manual of agricultural chemistry;" price 4s. 6d. The author has also written "Commercial hand-book of chemical analysis."

DXXIV.—Murphy, 1852.

Edmund Murphy, A.B., professor of agriculture in Queen's College, Cork, has written "The agricultural calculator and farmer's class book;" a valuable volume of much merit, and well adapted for the intended purpose. The work is devised for young persons, and questions are placed after each chapter, with which to refresh the memory and test the recollection. The best farmer may gain by its perusal.

DXXV.—Sturforth, 1852.

John Sturforth, architect, Edinburgh, has written "Architecture of the farm; being a series of designs of farm-houses, farm-steadings, farm-houses, and labourers' cottages;" 62 engravings; price £2 2s.

DXXVI.—Morton, 1852.

John Lockhart Morton, land agent, Edinburgh, has written "Rich farming, and co-operation

tween landlord and tenant." Two editions have appeared of this essay of 37 octavo pages, stitched, advocating good farming, liberal covenants, and moderate rents.

DXXVII.—Corrigan, 1853.

Andrew Corrigan, curator of the Royal Dublin Society's Agricultural Museum, has written "Theory and practice of modern agriculture; to which is added the breeding and management of sheep, cattle, pigs, and poultry, with some remarks on dairy husbandry." This small work is truly a *multum in parvo*, showing a very correct knowledge of the articles described.

DXXVIII.—Andrews.

G. H. Andrews, Esq., author of a treatise on agricultural engineering, has written "The practical farmer; a guide to modern husbandry, embracing the art and science of agriculture, and comprehensive instructions on breeding, rearing, grazing, and fattening stock;" copiously illustrated with views and plans of animals and implements; demy, 6s., and in calf 10s. 6d. This work is very creditably reported.

DXXIX.—Ferguson, 1854.

Ferguson and Vance have written an octavo volume "On tenure of land in Ireland." This work contains a very full and detailed statement of the various modes of holding land in Ireland, the cultivation of the soil, its products, and value. A secure holding of land in cultivation is but little useful where no capital rests with the farmer; both are wanting in Ireland, and fill up the measure of the misery of the country. Every exposition of the state of Ireland only shows a picture of human misery in the superlative degree, mainly produced by the social mismanagement of the landed property, which in every age and clime has exhibited the same picture of human misrule.

DXXX.—Sussex, 1854.

F. S. M. Sussex, Esq., F.S.A., has written "Manures considered in relation to the crop, the soil, and the atmosphere;" Dorking, 1848. A stitched volume of 60 octavo pages, discusses the general tendency of manures very scientifically, but makes no practical advance. The substances are not singly mentioned, nor treated separately.

The date of this work should have been placed earlier in our recorded notice of writers, but the title did not occur to our research till it was too late for insertion. In order that no name be omitted, the notice is now made.

DXXXI.—Hoskyns, 1854.

Chandos Wren Hoskyns, Esq., has written "A short inquiry into the history of agriculture, in ancient, mediæval, and modern times;" and "Talpa; or the chronicles of a clay farm." These works obtain very little notice.

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